

QUARTERLY PROGRAMMATIC REPORT

Project Manager: Phil Warner
California Department of
Fish and Game
CALFED #: 97-C04A
DWR Agreement #: B81614
Quarter: January 1, 2000 to March 31, 2000
FY: 99/00

Deliverables

	<u>Name of Deliverable</u>	<u>Due Date*</u>	<u>% of Work Complete</u>	<u>Date Complete</u>
Task 1				
Subtask A	Screen List	6/30/00	100%	12/15/99
Subtask B	Install 2 pump Screens	3/31/01	10%	
Subtask C	Hold Meetings	2/28/02	0%	
Task 2				
Subtask A	Mill Creek Screen	6/30/00	100%	3/31/00
Subtask B	Deer Creek Screen	3/31/01	5%	
Subtask C	Lake Calif. Screen	3/31/01	0%	
Subtask D	Screen rebuilding	2/28/02	0%	

*Assuming time extension amendment is approved.

Narrative

Task 2

Subtask A Mill Creek Screen

The Mill Creek fish screen is now complete. The irrigation canal was activated on 4/10/00 and the screen is now in operation and functioning properly.

No progress on other tasks.

Effects of Wetland Restoration on the Production of Methyl Mercury in the San Francisco Bay-Delta System

(CALFED Contract No. 97-C05)

University of California, Davis

Thomas H. Suchanek and Darell G. Slotton *(Principal Investigators)*

QUARTERLY PROJECT SUMMARY *(covering the period of 1/1/00 – 3/31/00)*

Prepared by Darell Slotton

- Task 1. Purchase new mercury analyzer system; bring new unit reliably on-line

and

- Task 2. Catalogue existing and projected wetlands; determine key gradients

have been completed at this time. However, \$2,131 remains in the Task 1 equipment fund. We are simultaneously faced with the critical need for an annual service contract for the unit (\$2,500) and request the use of this leftover funding to partially cover this expense.

Phase 2 of this project (July 1999 -June 2000) includes the following tasks:

- Task 3. (Continued) Quantify mercury across key gradients in reflooded wetlands/ control sites.
- Task 4. (Continued) Mercury methylation experiments.
- Task 5. (Continued) Formulate Conceptual Model.

Below, we summarize, by individual Task, our project work during the past quarter:

Task 3. (Continuation) Quantify mercury across key Delta gradients and flooded tracts.

Following our most extensive sampling campaign of the project, conducted between September and December of 1999, we spent the winter 2000 quarter performing a series of laboratory trials to determine how best to extract the most useful data from these samples. A large effort went into individual analyses of selected crayfish, small fish, and clams. In addition to generally characterizing mercury levels in these organisms, we have primarily been seeking consistent biomonitors that we can accurately compare in mercury content between sites throughout the Delta. The goal has been to find one or more

biomonitoring tools which vary relatively little in individual mercury accumulation within a given site while demonstrating statistically significant differences in mercury accumulation (and hence, local mercury bioavailability) between sites. Crayfish, one of our most promising candidate organisms from 1998, unfortunately appear to exhibit large variations in individual mercury accumulation even within a given site. This makes it very difficult to assess the potential differences in mercury exposure between sites. Similarly, both small fish and *Corbicula* clams, above certain mid-range size classes, appear to demonstrate fairly dramatic individual variability as well. In the case of inland silversides (the most wide-ranging Delta small fish species), above a certain mid-range size some individuals may develop specific feeding preferences which lead to the consumption of higher trophic level food. For example, anomalously high-mercury silversides may have developed a preference for larval fish as food, to the exclusion of lower-mercury food items such as zooplankton. We are hoping to confirm or disprove this hypothesis with stable isotope analyses, which can provide insights into relative trophic level. In the case of the clams, we have learned that seasonal reproductive patterns may leave some individuals relatively concentrated in mercury, due to large swings in body mass, while absolute amounts of mercury stay similar. These findings of relatively large ranges in individual mercury variation even in fairly low trophic level organisms are important new results from the project.

For both *Corbicula* clams and inland silversides, we have performed several large series of individual mercury analyses in order to determine how many individuals must go into composite samples for the mean data to be statistically reliable. Exhaustive individual mercury analyses are not an option for all the samples from each of our over 70 sites; some meaningful method of compositing is essential. In the course of determining mercury trends among numerous individuals from test sites, we were able to determine certain size classes of organisms which exhibited relatively little individual variation in mercury bioaccumulation within each site. At the time of this update, we are just finishing analytical work on a Delta-wide series of 15-28 mm *Corbicula*, one such relatively uniform group. This appears to be the best data set we have been able to assemble to date that also has a Delta-wide coverage. The preliminary results are interesting. An apparent elevation in mercury bioaccumulation levels near and just downstream of the convergence of the Sacramento and San Joaquin Rivers may be fairly independent of either direct mercury sources or habitat type. Additionally, the composite small to mid sized clam signal may provide a good picture of bioavailable mercury transport within the Delta. Preliminary data appear to indicate a consistent, above-background mercury signal along the primary channels of water flow produced by predominant system-wide water pumping patterns. We will next generate corresponding data from the inland silversides and then possibly from some of the other sample types for additional confirmation.

This portion of the project will continue to provide a great wealth of new data which will constitute a primary information base for our interpretations and management recommendations. The biota mercury data directly reflect the relative levels of mercury bioavailability and corresponding bioaccumulation in different habitats and locales throughout the system.

Task 4. (Continuation) Mercury methylation experiments.

We processed data and finalized QA/QC from three rounds of methylation potential experiments conducted at key Delta sites in Summer-Fall 1999. These experiments provide new insights into the factors driving Delta mercury methylation. The studies confirm that the potential for mercury methylation is dramatically enhanced in organic-rich wetland habitats, as compared to immediately adjacent channel and sand/mud flat habitats. This trend was seen in and around the Cosumnes River preserve in the East Delta, Liberty Island in the North Delta, and Venice Cut Island in the Central Delta. We are finding that inorganic mercury, if supplied to these systems, can be processed into toxic methyl mercury far more readily in certain marsh habitats than in other adjacent aquatic Delta habitat types. The fact that these sites with high methylation potential do not always demonstrate correspondingly elevated mercury accumulation in biota may be a function of lack of supply of inorganic mercury. Conversely, in high methylation potential habitats, a relatively small amount of newly deposited inorganic mercury can now be predicted to potentially lead to problem methyl mercury accumulation levels in biota. These initial experiments provide a good basis for future development of this Task. We have plans for additional Task 4 experimental work between Spring and Fall of this year. These studies, in conjunction with the extensive field sampling, are expected to be quite helpful in suggesting management strategies with regard to mercury in the Delta system.

Task 5. (Continuation) Formulate Conceptual Model.

This is an ongoing task that will be refined as we develop additional data from Tasks 3 and 4, and as we gain knowledge in the field and through interactions with other researchers. The bulk of this work is intended to commence during Phase/Year 3.

Title: The Effects of Wetland Restoration on the Production of Methyl Mercury in the San Francisco Bay-Delta System
Applicant: University of California, Davis (Thomas H. Suchanek and Darell G. Slotton et al.)
CALFED Project Number: 97-C05

Budget year: 2000
Statement Quarter: 3

Total Estimated Cost of Entire Project: \$553,197 (reflects recent shift of \$7,500 to equipment and lessening of indirect costs (and total costs) by a corresponding \$750
Funding from CALFED Prop. 204 Account: **545,420** (reflects recent shift of \$7,500 to equipment and lessening of indirect costs (and total costs) by a corresponding \$750
Any other Funding: 7,777

\$7,777 in matching funds from UC Davis (33.3% x 23,331 cost of new mercury analyzer equipment; Task 1)

Phase 2 Schedule: (7/1/99 - 6/30/00) 1 year

Total Project Estimated Completion Date: (July 2001) 3 years

Total Project Estimated Completion Date: (July 2001)	3 years	PHASE 2 (Quarterly Budget--3rd Quarter)				PHASE 2 (FY '00 Annual Budget)				PHASES I-3 (Total Three Year Budget)			
		Budget	Accrued Expenditures	Variance	**	Budget	Accrued Expenditures	Remaining Balance	**	Budget	Accrued Expenditures	Balance to Complete	**
Task 1: Purchase new Mercury Analyzer		\$2,131	\$2,131	\$0		\$2,131	\$2,131	\$0		\$15,554	\$15,554	\$0	
Schedule: 10/98													
Percent Work Complete for Task 1: (100%)													
Task 2: Catalogue Wetlands; determine key gradients		\$0	\$0	\$0		\$0	\$0	\$0		\$50,096	\$50,096	\$0	
Schedule: 7/1/98 through 6/30/99													
Percent Work Complete for Task 2: 100%													
Task 3: Quantify mercury levels in Delta field samples		\$29,364	\$28,000	\$1,364		\$117,457	\$54,939	\$62,518		\$203,757	\$81,219	\$122,538	
Schedule: 7/1/98 through 6/30/01													
Percent Work Complete for Task 3: 40%													
Task 4: Mercury methylation experiments		\$32,248	\$30,000	\$2,248		\$128,990	\$55,938	\$73,052		\$201,615	\$66,551	\$135,064	
Schedule: 7/1/98 through 6/30/01													
Percent Work Complete for Task 4: 33%													
Task 5: Formulate evaluative model		\$2,802	\$2,600	\$202		\$11,208	\$5,740	\$5,468		\$74,399	\$9,412	\$64,987	
Schedule: 7/1/98 through 6/30/01													
Percent Work Complete for Task 5: 13%													
Totals:		\$66,545	\$62,731	\$3,814		\$259,786	\$118,748	\$141,038		\$545,421	\$222,832	\$322,589	

§ Accrued expenses for the current quarter are estimates at the time of reporting, as is that portion of the annual and three year accrued expenses.
(Once tabulated precisely and invoiced, the exact amounts are added to the ongoing totals in successive budget reports).

April 13, 2000

Lauren Hastings
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1148
Sacramento, CA 95814

Dear Lauren:

Please find attached our sixth quarterly progress report for the project “Alternative Practices for Reducing Pesticide Impacts on Water Quality”, Contract #B-81609. A lot of work was completed this past quarter. Although many of our “best laid plans” relative to field work were partially compromised by odd weather patterns and equipment deficiencies, we nonetheless collected a good number of samples that are proving to be of significant value. Progress in information gathering for our databases has been good, and the successes in our outreach efforts and building cooperative relationships with stakeholders has been quite gratifying.

As before, for ease of presentation and review, this report reiterates the task sections of the Year 2 Task Orders in small font, followed by the progress for each section and task presented in larger bold font. Should you have any questions or comments or need any further information, please do not hesitate to contact me. I or my colleagues will address any concerns.

Sincerely,

Michael N. Oliver
Project Manager

PROGRESS REPORT
April 13, 2000
**ALTERNATIVE PRACTICES FOR REDUCING
PESTICIDE IMPACTS ON WATER QUALITY**
CONTRACT #B-81609

This report summarizes activities and accomplishments since our last progress report on January 15, 2000. Task Orders for Year 2 of the contract are presented together with “**REPORT**” sections on the status of each task.

TASK ORDERS
August 1, 1999 – July 31, 2000 (Year 2)
Contract No. B81609

TASK 1 – MATRIX OF INFORMATION SYNTHESIS – Year 2

Continue Year 1 efforts in compiling the current knowledge of urban and in-season agricultural (stonefruit and almond production) pest management practices that are alternatives to diazinon and chlorpyrifos. Currently fragmented information on these alternatives is being compiled from scientific journals, research reports, and unpublished (anecdotal) investigations primarily found at the U.C. Cooperative Extension county level of ongoing applied research. From the compiled knowledge, we will produce information synthesis documents (the Alternative Practices Matrices) that will display comprehensive sets of interactive variables relative to alternative practice economics, efficacy, and environmental impact potentials.

Subtask 1. P.I. (Zalom), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and staff writer (Gouveia) will continue compiling information on urban and in-season agricultural (stonefruit and almond production) uses of chlorpyrifos and diazinon.

Subtask 2. P.I. (Zalom), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and staff writer (Gouveia) will continue compiling the literature that addresses alternatives to chlorpyrifos and diazinon for the uses identified in Subtask #1. This information serves as the basis of educational/outreach materials and activities listed under Task 2, “Alternative Practices Education And Outreach”.

Subtask 3. Project manager and P.I. prepare materials for progress reports.

REPORT: Work continued on developing the alternative practices materials for the in-season uses of diazinon and chlorpyrifos (Flint and Gouveia) . The in-season matrix has been sent out for review; we’ve been receiving some comments and are making the appropriate edits as they come in.

The format for the ant matrix has been developed (only slightly different than the design used for the dormant and in-season matrices); an initial literature search for ants (urban) has been done and the information is being put into the matrix format. It is anticipated that we will be sending this to reviewers by May 1.

We estimate the Year 2 goals for Task 1 to be 65% complete (budget expended = 46%)

TASK 2 – ALTERNATIVE PRACTICES EDUCATION AND OUTREACH – Year 2

Programs will be further developed to provide agricultural producers (stonefruit and almonds) with detailed assessments of the current knowledge of water quality problems associated with pesticide use while offering

substantive alternatives. For urban users of diazinon and chlorpyrifos, the education and outreach component of the project will define the main urban uses of diazinon and chlorpyrifos, establish the most appropriate priority of audiences to address, and identify the most appropriate means of gaining access to these audiences.

The following subtasks describe the general approach and sequence of work on behalf of both the agricultural and urban components of this task.

Subtask 1. Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), staff writer (Gouveia), and CE Advisors (Duncan and Perry) will continue developing baseline information on current pesticide use practices within the case study area (Stanislaus County).

Subtask 2. P.I.s (Zalom, Hinton, and Wilson), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), staff writer (Gouveia), and CE Advisors (Duncan and Perry) will continue identifying local, regional, and state agencies and organizations that are stakeholders in urban and in-season agricultural uses of chlorpyrifos and diazinon.

Subtask 3. P.I. (Zalom), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and CE Advisors (Duncan and Perry) will formally establish advisory/steering committees (drawn largely from the Phase I committee). These groups will primarily advise and review the education and outreach activities and materials for the major urban and in-season users of chlorpyrifos and diazinon. They will also review field study protocols as needed for Task 3, "Field Studies Of Alternative Practices".

Subtask 4. P.I. (Zalom), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and CE Advisors (Duncan and Perry) will continue establishing the most appropriate priority of audiences for directing educational and outreach efforts (e.g. licensed applicators, wholesale/retail nursery distributors, residential users, crop associations), and the most appropriate means of gaining access to those audiences.

Subtask 5. P.I.s (Zalom, Hinton, and Wilson), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and CE Advisors (Duncan and Perry) will continue developing educational materials appropriate for the focal audiences. Sophistication of educational materials will be consistent with the scope of the budget for this project. These materials will be submitted to the advisory committees and CALFED for review and comment.

Subtask 6. P.I.s (Zalom, Hinton, and Wilson), Project Manager (Oliver), Integrated Pest Management Program (IPM) Director of Education and Publications (Flint), and CE Advisors (Duncan and Perry) will continue to implement education and outreach efforts.

Subtask 7. Project manager and P.I.s prepare materials for progress reports.

REPORT: We developed and submitted to CALFED a suggested list of participants for an Advisory Committee to address the urban component of our work. Meetings have continued with some of the representatives proposed for this committee (primarily those representing the City of Modesto) to further our mutual educational efforts related to urban pesticide runoff issues. A convening of our urban advisory committee is scheduled for May 17 to address 1) an overview of the CALFED project, 2) what's been done so far, 3) identification of target pests, 4) initial identification of target audiences, 5) introduction to the matrix, 6) outreach UC is already doing, 7) publications, 8) retail nursery training, 9) research possibilities, and 10) how the advisory committee might best serve our mutual goals. The urban advisory committee will also serve as a stakeholder group for the city of Modesto.

Gouveia and Oliver have continued to participate in meetings with the Sacramento River Watershed Program (SRWP) Focus Group on their efforts to improve education and alternatives development. This remains a valuable mechanism for exchanging ideas and keeping several stakeholder interests updated on our efforts. Key members of this group recently participated in a meeting with a larger component of our team to advance shared interests in prioritizing field studies on alternative practices and best management practices related to the use of dormant OP sprays.

The Wilson and Oliver draft educational pamphlet on the ABCs of Toxicology (and Ecotoxicology) has been deemed most appropriate for targeting secondary school and 4-H-type audiences; it is currently pending review by a small group of educators familiar with the material and the intended audiences. Meanwhile, similar material on toxicology is being drafted by Gouveia and Oliver with the intended audience being those in the agricultural and urban sectors with the highest potential of addressing the pesticide and water quality issues; it will potentially be used by various groups (such as SRWP) for their outreach efforts.

The “Dormant Spray Alternatives Calculator”, available through the UC IPM website (<http://www.ipm.ucdavis.edu/WATER/OPCALC/>) since January, has been receiving high praise from a variety of stakeholders and has repeatedly been the subject of articles in the popular press (e.g. “Nut Grower Magazine” and “California Farmer”). The calculator offers users a comprehensive review of the many variables involved in pest management and the costs associated with choosing alternatives to OP dormant sprays. Users can accept default values for such items as product costs and application rates, or they can opt to substitute their own information.

We have continued our practice of making presentations on the goals and products of our project to a variety of audiences. We are currently on the agendas of upcoming meetings including grower field day workshops and watershed group committee meetings.

We estimate the Year 2 goal for Task 2 to be 50% complete (budget expended = 22%).

TASK 3 – FIELD STUDIES OF ALTERNATIVE PRACTICES – Year 2

Year 2 field studies will build on those done in Year 1 as well as investigate the role of other management practices that may influence the quantity and/or pesticide concentration of runoff from orchards utilizing various dormant treatments. As in Year 1, water quality monitoring will determine whether reduction of offsite pesticide movement and/or overall toxicity of runoff follows adoption of alternative practices. Where possible, pest control monitoring will compare efficacy of diazinon and chlorpyrifos with alternative treatments for control of peach twig borer and scale insects in replicated field trials where the toxicology monitoring will also be conducted. Efforts towards the development of resident species bioassays as alternatives to the standard EPA test organisms will also continue in Year 2.

Subtask 1. P.I.s (Zalom, Hinton, and Wilson), Project Manager (Oliver), and CE Advisors (Duncan and Krueger) will identify and select areas with history of appropriate pest incidence and consistent with the master protocol criteria for field studies.

Subtask 2. The draft master protocol, although completed in Year 1, will receive review by the advisory committee and the Resources Agency monitoring group.

Subtask 3. P.I.s (Zalom, Hinton, and Wilson), Project Manager (Oliver), and CE Advisors (Duncan and Krueger) and growers initiate treatment of field study sites. Replicated treatments may consist of the target organophosphates, alternative conventional pesticides (carbamates, pyrethroids including Ambush and Asana), microbial or other biologically-based pesticides that are generally regarded as “safe” (for example *Bacillus thuringiensis*, Spinosad and pheromones), in season (rather than dormant season) applications of these materials, and reduced rates of application. Additional parameters studied may include the influences of slope of site, soil type, vegetative ground cover (amount and type), method of spray application (aerial vs. ground), and timing of dormant spray application (early, mid, or late winter).

Subtask 4. Where sites are selected for pest monitoring, P.I. (Zalom), Project Manager (Oliver), and CE Advisors (Duncan and Krueger) and growers monitor pest incidence and damage in each treatment replicate after treatments have been established. Monitor peach twig borer shoot strikes and fruit damage at harvest. Monitor San Jose scale males with pheromone traps and scale populations on wood and fruit.

Subtask 5. Project Manager (Oliver), CE Advisors (Duncan and Krueger), and various lab personnel collect winter runoff water samples from study sites.

Subtask 6. In accordance with the master protocol, P.I.s (Hinton and Wilson) and associated lab personnel (Deanovic and Henderson) will perform bioassays and chemical detection for pesticide levels in the samples collected at the field study sites.

Subtask 7. Department of Land, Air, and Water personnel (Wallender and Angermann) will build on their Year 1 hydrology experiences in order to create a robust methodology to quantify surface water runoff and its pesticide load caused by natural rain events during the dormant spray season. Specifically, they will develop a methodology for determining the infiltration function of a site, design and construct a portable apparatus, test and verify the apparatus under simulated controlled as well as natural conditions, apply the methodology within at least one of the project study sites, and analyze the data.

Subtask 8. Toxicology lab personnel (Hinton and Deanovic) will continue to evaluate candidate organisms on the basis of their role in the food web of CALFED-identified, endangered, and/or listed fish species. They will continue collecting organisms and establishing cultures of resident food web organisms.

Subtask 9. Toxicology lab personnel (Hinton and Deanovic) will conduct bioassays with native food web organisms (a. benthic midge *Chironomus sp.*; b. cyclopoid copepod; c. cladoceran *Bosmina sp.*; and, d. amphipod (*Corophium sp.*), and rank order as to sensitivity and select one sensitive and one moderately sensitive species for bioassays and possible use in Toxicant Identification Evaluations (TIEs).

REPORT: Preliminary bioassay data from our Glenn Co. orchard site indicates a significantly lower toxicity from diazinon in runoff collected from plots with vegetation ground cover than in that from plots with bare ground. This is consistent with last winters chemical analyses relative to diazinon concentration of runoff from the same plots. Chemical analyses from these recent studies are still pending.

Work by the Wallender and Angerman team in simulating rain for measuring flow characteristics in orchards suggests that non-tillage clover is the best performer in terms of directing the largest amount of rainwater to infiltration, thus reducing runoff. Somewhat surprisingly, bare ground and resident vegetation behave similar to each other. Possible explanations include recognizing that our bare ground was not really bare but consisted of killed resident vegetation, i.e. the structure of the grass is still there, including root canals (which provide preferred flow paths for water when root turgor decreases). Perennial Sod Mix seems to be superior during the first flush when soil moisture conditions are relatively low but is the loser during the second flush. We think that the way it was seeded may have

something to do with this phenomenon. The disking created rows of sod with smooth unvegetated "alleys" in between them. Replication of these trials will be achieved when flood irrigation of these plots occurs.

The success of our somewhat elaborate field sampling apparatus was moderate. A number of equipment failures occurred and some of our diversion dams for channeling water into the apparatus failed. Nonetheless, sufficient samples were collected to provide replicates for each of the vegetation treatments. Chemical analyses of these samples is pending.

The anticipated runoff samples from our Stanislaus Co. field site did not meet our expectations. In spite of several good storm events, there was only one period during which runoff actually occurred enough to yield sufficient samples in 8 of our 12 plots. Although we had hoped for 3 replicate samples for each of the 4 treatments, the 8 samples from the one event do give us enough replication to still serve as an indicator of trend. The trial focused on whether or not diazinon concentration in runoff was a function of trees being sprayed at times earlier than the conventional practice. Lab analyses are pending. We will be placing insect traps in this orchard next week to get a measure of pest control efficacy relative to the timing of diazinon application. Scale and peach twig borer collections from each of the 12 plots will be counted and compared.

We have been neglect in reporting the results of a study conducted by Dr. Hinton's lab in cooperation with the City of Modesto. The study was designed to measure toxicity of runoff into Dry Creek from an area representative of urban influences to that from an area representative of agricultural influences. Samples were collected during two major rainfall events, one in October of 1998 and the other in January of 1999. During both rainstorms, water samples collected at Moose Park (urban outfall) were more toxic than at Copper Creek Community (agricultural outfall). In October 1998 samples from Dry Creek at Moose Park were toxic to waterflea (*C. dubia*) only; samples collected in January 1999 at this site were toxic to waterflea (*C. dubia*) and algae (*S. capricornutum*). The chemical compound that caused the majority of the observed toxicity to waterflea was identified as the organophosphate insecticide, diazinon.

We estimate the Year 2 goal for Task 3 to be 60% complete pending completion of data analysis and summarization (budget expended = 40%).

BUDGET: The following is a summary of our budget expenditures, variances, and balances through the sixth quarter of the project.

Title Alternative Practices for Reducing Pesticide Impacts on Water Quality
Applicant: University of California, Davis (UCD)
CALFED Project Nur B81609 (97-C12)

Budget year: 2000
Statement Quarter: 2

Total Estimated Cost of Project (phase II): \$957,781
 Funding from Federal Bay-Delta Account \$957,781
 Any other Funding 0

Second Year Schedule 1 year

Total Project Estimated Completion Date: 3 years

		PHASE II (Quarterly Budget) REVISED				PHASE II (FY '00 Budget) REVISED				PHASE II (Three Year Budget) REVISED		
		Budget	Accrued Expenditures	Variance **		Budget	Accrued Expenditures	Remaining Balance **		Budget	Accrued Expenditures	Balance to Complete **
Task 1:	Matrix Information Synthesis	\$11,424	\$15,479	(\$4,055)	1	\$45,696	\$23,279	\$22,417		\$122,507	\$56,049	\$66,458
Schedule: FY '99 through FY '01												
Task 1	Percent Work Complete for Task 1: 46%	11,424	15,479	-4,055		45,696	23,279	22,417		122,507	56,049	66,458
Task 2:	Education and Outreach	\$24,699	\$14,346	\$10,353	2	\$98,795	\$30,581	\$68,214		\$180,766	\$38,096	\$142,670
Schedule: FY '99 through FY '01												
Task 2	Percent Work Complete for Task 2: 22%	24,699	14,346	10,353		98,795	30,581	68,214		180,766	38,096	142,670
Task 3:	Field Studies	\$79,716	\$82,146	(\$2,430)	3	\$318,865	\$175,957	\$142,908		\$654,508	\$262,560	\$391,948
Schedule: FY '99 through FY '01												
Task 3	Percent Work Complete for Task 3: 40%	79,716	82,146	-2,430		318,865	175,957	142,908		654,508	262,560	391,948
Phase II Total:		\$115,839	\$111,971	\$3,868	**	\$463,356	\$229,817	\$233,539		\$957,781	\$356,705	\$601,076

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Please explain significant variance.

TASK 1: Payroll expense transfers adjusting expenses charged to this task for Project Manager Oliver and Pattie Gouviea have not been processed at the close of this reporting period. The next report will show these adjustments reflecting the revised budget.
 TASK 2: Same as above applies to this task as well.

TASK 3: Payroll expense transfers adjusting expenses for Project Manager Oliver have not been processed at the close of this reporting period. The next report will show these adjustments.

NOTE: BUDGET FIGURES USED ARE THE EXHIBIT B BUDGET (REVISED 12/99).
 I would expect the next quarterly report to reflect that expenses are in line with the new revised budget and that the progress of work is on target with the timeline for the project.

Title: Hamilton Wetland Restoration Project

Applicant: Coastal Conservancy

CALFED Project Number: B81642 (98-C03)

Budget year: 1999/2000
Statement Quarter: 2
1/1/00-3/31/00

Total Estimated Cost of Project: \$2,300,115
Funding from State Bay-Delta Account 1,000,015
Coastal Conservancy
Scoping - completed 114,300
Conceptual Restoration Plan 415,000
Army Corps of Engineers
Feasibility Study awaiting final accounting
Project schedule 2.25 years

Total Project Estimated Completion Date: June 31, 2001

		PHASE I (Quarterly Budget)				PHASE I (FY '00 Budget)				PHASE I (Three Year Budget)			
		Budget	Accrued Expenditures	Variance	**	Budget	Accrued Expenditures	Remaining Balance	**	Budget	Accrued Expenditures	Balance to Complete	**
Task 1:	ACOE Feasibility Study - completed	\$0	\$0	\$0		\$0	150	(\$150)	3	\$172,000	172,001	(\$1)	4
	Schedule: FY '98 through FY '99												
Task 2:	Hamilton EIR/EIS - completed	\$0	\$0	\$0		\$0	0	\$0		\$286,500	286,512	(\$12)	4
	Schedule: FY '98 through FY '99												
Task 3:	Hamilton Plan - postponed to 2nd quarter 1999	\$10,000	\$0	\$10,000	1	\$25,000	\$0	\$25,000	1	\$25,000	0	\$25,000	1
	Schedule: FY '98 through FY '99												
Task 4:	BMK Feasibility Study	27,000	15,000	12,000	2	47,000	36,441	10,559	2	75,000	36,441	38,559	2
	Schedule: FY '98 through FY '99												
Task 5:	BMK EIR/EIS	0	0	0		50,000	\$0	50,000	2	50,000	0	50,000	2
	Schedule: FY '98 through FY '99												
Task 6:	Final Design	42,770	7,115	35,655	2	171,080	\$65,490	105,590	2	321,515	\$65,490	256,025	2
	Schedule: FY '98 through FY '00												
Task 7:	Permitting												
	Schedule: FY '99 through FY '00	9,950	14,895	-4,945	3	39,800	\$27,800	12,000	2	70,000	\$38,100	31,900	2
Project Total:		\$89,720	\$37,010	\$52,710		\$332,880	\$129,881	\$202,999		\$1,000,015	\$598,544	\$401,471	

**** Explanation of Variance in Budget :**

- 1 Delayed invoicing
- 2 Delayed contracting technical tasks
- 3 Extra effort needed in permitting consultation
- 4 Slight overbilling

Covers invoices 15 & 16

April 14, 2000

Ms. Lauren Hastings, Contract Manager
CALFED Bay-Delta Program
1416 Ninth Street, Room 1155
Sacramento, CA 95814

RE: January-March 2000 Quarterly Progress Report for B81715, B81831, and B81832

Dear Lauren:

The objective of this project is to provide data necessary to develop a Delta Dredging and Reuse Strategy (DDRS) to select goals and an overall approach that can be used later to develop a long-term Delta Dredge Material Management Plan (DDMMP). The California Department of Fish and Game (DFG), Regional Water Quality Control Board, Central Valley Region (CVRWQCB), and the Delta Protection Commission (DPC) jointly are working on this study. Activities of CALFED during the next few decades will affect the development of these plans because several ecosystem restoration projects will require the dredging and reuse of Delta sediments. The DDMMP would have broader applications for all dredging and levee maintenance activities in the Sacramento-San Joaquin Delta and implement those policies of the affected DDRS agencies. The DDMMP will allow the regulatory agencies to expedite project assessment, monitoring requirements and appropriate reuse or disposal.

Previous work:

Previous work was done on Tasks 2,3 and 4 as described in the October-December 1999 Quarterly Progress report.

I. Task 1 - Select and convene a Technical Advisory Panel

No activity was done on this task this quarter.

II. Task 2 - Attend Technical Advisory Panel meetings

Several staff of the DFG and CVRWQCB attended the TAP meeting on February 1, 2000. Minutes of the February 1, 2000, meeting are available from the DPC. A third meeting of the TAP is scheduled for April 3, 2000, in Rancho Cordova.

The second meeting of the Delta Dredging and Reuse Strategy Technical Advisory Panel met on February 1, 2000 and was attended by Sue McConnell and Donna Podger of the CVRWQCB and Brian Finlayson of DFG. Information was presented by the CVRWQCB on (a) waste discharge requirements from current and previous sediment dredging and reuse projects, (b) proposed projects for reuse of sediments from Suisun Bay Channel on Sherman Island levees, and (c) proposed project database. Information was presented by the DFG on (a) Sacramento-San Delta Sediment Characteristics Databases (DDRS Database and Sediment Dictionary Database) and (b) funding for pilot projects.

III. Task 3 - Compile and assess proposed delta dredging project information

Due to poor response to the December mailing that requested project information, the letter and form were rewritten and resent to 86 Delta reclamation districts, 81 Delta marinas, DWR, COE and CALFED. Responses to second mailing included 23 proposed dredge projects including 10 for levee maintenance, 11 marinas, ship channel maintenance and dredging to improve water intake flows.

The database was updated to include the 23 proposed projects. Current Delta marina addresses were also added to the database. Updated reports will be presented to the Technical Advisory Panel at the April 6th meeting.

IV. Task 4 - Collect, organize, and evaluate existing information on Delta sediments

Staff from CVRWQCB and DFG attended 3-day conference on “Dredge Material Assessment and Management” hosted by COE and EPA.

A spreadsheet was compiled of criteria for soluble inorganic constituents from past and current permits and compared to National and State water quality objectives. A database was compiled of all known sediment quality objectives and presented to the Technical Advisory Panel at the February meeting. Nine databases to characterize the Delta sediments were created, and five databases to describe delta testing and quality were created. Collected and reviewed dredge material guidance documents (i.e., Inland Testing Manual) that were developed by the COE and EPA. Collected and reviewed some of the research briefs and technical notes on dredging and dredge disposal from COE Waterways Experiment Station. Began working on “interim criteria” for predredge assessment of sediments that will be placed in an upland confined disposal facility. Collected and reviewed information on analytical methods used in previous permits. Compiled preliminary list of useful analytical methods and detection limits for sediment testing. Collected and reviewed information from the Corps and EPA on required elements for Sampling and Analysis Plans and recommended QA/QC protocol for sediments. Collected and reviewed Dredge Material Management Plans for Great Lakes and Columbia River Basin.

Reviewed the Delta sediment information on file at the CVRWQCB, and began the review of the Delta sediment information on file at DWR and COE. These data will be prioritized for review and inclusion into the databases.

Began development of “Chemicals of Concern” database that will screen EPA’s list of priority and non-priority pollutants and determine which chemicals are of concern in Delta sediments. This database will organize information on environmental fate, regional sources, levels previously found in sediment and fish tissues in the Delta, and will be linked to EPA’s published water quality criteria.

V. Task 5 - Evaluate existing sediment quality data

DFG and CVRWQCB - No activity was undertaken on this task in this quarter.

VI. Task 6 - Comment on Waste Discharge Requirements (WDRs)

DFG and CVRWQCB - No activity was undertaken on this task in this quarter.

VIII. Task 7 - Draft Delta Dredging and Reuse Strategy (DDRS)

DFG and CVRWQCB - A preliminary outline for the DDRS report was developed and is under review.

IX. Task 8 - Approval of DDRS and WDRs

DFG and CVRWQCB - No activity was undertaken on this task in this quarter.

X. Task 9 - Monitoring Studies

DFG and CVRWQCB - No activity was undertaken on this task in this quarter.

Future Work:

Work associated with Tasks 3, 4 and 5 are expected to continue beyond the end of the current Fiscal Year. It is anticipated that DFG and the CVRWQCB will seek extensions on all tasks because of delays associated with contract approval and initiation of the DDRS. Work associated with Tasks 5, 6, and 9 will be conducted in Fiscal Years 1999/2000 and 2000/2001. Work associated with Tasks 7 and 8 will be conducted in Fiscal Year 2000/2001.

Sincerely,

Brian Finlayson, Chief
Pesticide Investigations Unit

cc: Margit Aramburu, DPC
Donna Podger, CVRWQCB

**Fiscal Report for
Delta Protection Commission
Delta Dredging and Reuse Strategy**

Contract B81832
Budget Year FY 99/00
Statement Quarter Jan – Mar 2000

Contract B81832
Budget Year FY 99/00
Statement Quarter Jan-Mar 2000

Task No.	Task Description	Jan-Mar 00 Quarterly Budget			FY 99-00 Annual Budget			% Completed
		Budget	Accrued Expenses	Variance	Budget	Accrued Expenses	Balance to Complete	
1	TAP group selection	0	0	0	0	0	0	100%
2	Prepare TAP Meeting Mailings	1,042.53	279.00	763.53	4,170.12	530.51	3,639.61	50%
3	Meeting Attendance/ Prep of Minutes	240.00	116.16	123.84	960.00	232.32	727.68	50%
4	Travel Expenses for TAP Members	1717.47	284.38	1,433.09	6,869.88	843.10	6,026.78	50%
Total		3,000	679.54	2,320.46	12,000	1,605.93	10,394.07	50%

**Fiscal Report for
Department of Fish and Game
Delta Dredging and Reuse Strategy**

Contract B81715 (98-C09b)
Budget Year FY 99/00
Statement Quarter Jan-Mar 2000

Contract B81715
Budget Year FY 99/00
Statement Quarter Jan-Mar 2000

Task No.	Task Description	Jan-Mar 00 Quarterly Budget			FY 99-00 Annual Budget			% Completed
		Budget	Accrued Expenses	Variance	Budget	Accrued Expenses	Balance to Complete	
1	TAP group selection						--	--
2	Attend TAP meetings		800		2,560	1,200	1,360	47%
3	Compile project information		4,500		12,000	9,000	3,000	75%
4	Collect and organize existing data		25,058		46,000	44,458	1,542	97%
5	Evaluate data		6,000		23,000	13,017	9,983	60%
6	Draft WDRs		0		5,060	0	5,060	0%
7	Develop DDRS		0		--	0	--	--
8	Review of DDRS		0		--	0	--	--
9	Pilot project design		0		55,000	0	55,000	0%
Total			36,358		143,620	67,675	75,945	47%

**Fiscal Report for
Regional Water Quality Control Board, Central Valley Region
Delta Dredging and Reuse Strategy**

Contract B81831
Budget Year FY 99/00
Statement Quarter Jan-Mar 2000

Contract B81831
Budget Year FY 99/00
Statement Quarter Jan-Mar 2000

Task No.	Task Description	Jan-Mar 00 Quarterly Budget			FY 99-00 Annual Budget			% Completed
		Budget	Accrued Expenses	Variance	Budget	Accrued Expenses	Balance to Complete	
1	TAP group selection						--	--
2	Attend TAP meetings		325.27		2500	1,704.92	795.08	68.2%
3	Compile project information		2,717.06		5000	5,000.43	-0.43	100.0%
4	Collect and organize existing data		13,849.92		40500	15,762.53	24,737.47	38.9%
5	Evaluate data				22000	51.68	21,948.32	0.2%
6	Draft WDRs				25000		25000	0.0%
7	Develop DDRS				--		--	--
8	Review of DDRS				--		--	--
9	Pilot project design				5000		5000	0.0%
Total			16,892.25		100,000.00	22,519.56	77,480.44	22.5%

State of California
Memorandum

To: Ms. Lauren Hastings, Contract Manager
CALFED
1416 Ninth Street, Room 1148
Sacramento, California 95814

Date: April 19, 2000

From: Department of Fish and Game

Subject: Programmatic Quarterly Report for Contract B81833

This report describes the work done by DFG staff during the period from October 1, 2000 through March 31, 2000. During this period DFG staff worked on the following assignments:

A. Initial Preparation for Study Implementation

During this period Mr. Bob Fujimura left the project, and Mr. Dan Odenweller finished preparing tentative work schedules, contract documentation for the CALFED agreement, and the major equipment orders. We promoted Mr. Geir Aasen to replace Mr. Bob Fujimura, and began coordination with key project work teams. Mr. Fujimura and Mr. Aasen were assisted by Ms. Maureen McGee and two Scientific Aides.

The needed boats and field equipment were identified and procurement process started; seasonal personnel hiring was started, training begun for key team members; standard operating procedures (SOP's) were developed; tentative stationary receiver sites were identified; mobile monitoring routes identified; performance requirements were determined for the study's telemetry equipment; and initial contact made to representatives of some of the local reclamation districts.

During this period, we experienced several programmatic setbacks. First, the promotion of Mr. Bob Fujimura to head up the Fish Salvage Operations Unit of the Central Valley Bay-Delta Project led to a short delay, until his replacement was in place. Second, the loss of another staff member to a promotion led to a need to redirect some of Ms. McGee's time to other studies. We were however, able to order the equipment on schedule. The main telemetry equipment order is expected to arrive sometime in the first half of 2000.

We are now faced with a new challenge, as the palmtop computers we had been using for these telemetry studies are no longer being manufactured. Their replacement palmtop uses a new operating system (Windows CE). We have found a way to convert our existing programs from the DOS operating system to the Windows CE environment, and will be pursuing this work in the near future.

Ms. Lauren Hastings
April 19, 2000
Page Two

B. Draft Work Plan Preparation

Staff worked on a draft work/quality assurance project plan for this project. This draft document includes a revision of the personnel structure, descriptions of the: 1) proposed fixed receiver locations; 2) the proposed mobile monitoring routes; 3) the proposed water quality monitoring sites; and the equipment lists, a tag deployment schedule, a revised budget and work schedule, and a detailed SOP section. It will undergo Department review starting in October 1999. The plan (revised draft document) will be circulated to other agencies, stakeholders, and to CALFED in mid-April.

The attached fiscal quarterly report estimates the Departments' procurement and personnel services charges that occurred in the first and second quarter periods (October 1, 1999 to March 31, 2000). Keep in mind that the issuance of invoices has lagged significantly behind the end of each fiscal quarter. This is due to both internal tracking activities and accounting corrections, which delay this process. Therefore, our enclosed estimates may differ from the officially submitted final invoices.

If you have any questions, please contact me at CALNET 8-423-3702.

Dan Odenweller
Senior Biologist
Central Valley Bay-Delta Branch

Attachments

cc: Dr. Perry Herrgesell, CVBDB
Mr. Alan Baracco, CVBDB
Mr. Geir Aasen, CVBDB
Ms. Maureen McGee, CVBDB
Mr. Sonny Olaso, CVBDB
Ms. Suzette Smythe, FASB
Mr. Dick Daniel, CALFED

QUARTERLY PROGRAMMATIC REPORT

Project Title Biological Assessment of the Green Sturgeon in the Sacramento-San Joaquin Delta
Program Manager Lauren L. Hastings, phone: 916-653-4647, e-mail: hstings@water.ca.gov
Project Manager Joe Cech, phone: 530-752-3103, e-mail: jjcech@ucdavis.edu
CALFED Project # 98-C15 (B81738)
Quarter Ending: March 30, 2000

Deliverables

NOTE: The 98-C15 agreement was not fully executed until April, 1999, and a 9-month no-cost extension (until 10-30-00) was granted.

<u>Deliverable</u>	<u>Due Date</u>	<u>% Complete</u>	<u>Date Deliverable Complete</u>
Task 1 (Report on temp. tol., tendencies, swim perf., metab. rate, bl. equilib., eval. for managem.)	10-30-00	95	
Task 2 (Report on GS reprod. characteristics, including age-specific devel. & gamete charac's.)	10-30-00	95	
Task 3 (Report on GS' baseline reproductive & stress hormone profiles.)	10-30-00	70	
Task 4 (Report on GS genetic diversity & sturgeon genetic markers.)	10-30-00	90	
Task 5 (Report on GS egg, larval, and adult distributions & abund.; infl. of abiotic factors.)	10-30-00	30	
Task 6 (Develop Biological Monitoring/Research Plan, incorporating a Quality Assurance Plan)	4-15-99	100	
Task 7 (Quarterly fiscal and programmatic reports by the end of the quarter.)	4-17-00	90	

Narrative

Task 1: GS Temperature Tolerance Limits and Behavioral Tendencies, Swim. Performance (J.J. Cech, UC Davis, Task Leader)

Young-of-the-year (YOY) green sturgeon (*Acipenser medirostris*) (GS), spawned from Klamath River-collected broodstock GS in May, 1999, in cooperation with the Yurok Tribe (see Tasks 2, 3, 4), were used in a series of respiratory metabolism, food consumption, growth, and temperature preference experiments. GS routine metabolic rates were measured at 11, 19, and 24EC, with rates generally increasing with increasing temperature and increasing body weight. Other YOY GS were situated in replicate rearing tanks at three temperatures: (11, 15, and 19EC) and two ration levels (ad lib. and 50% ad lib.), and food consumption and growth rates were measured over a 30-day period. Increases in temperature and ration size generally increased juvenile green sturgeon food consumption rates and growth rates. Food conversion efficiency was higher at the reduced ration and at the warmer (19 and 24EC) temperatures compared with

the ad lib. (satiation) ration and cooler (11EC) temperature, respectively. Finally, YOY GS temperature preferences were measured in an annular thermal gradient tank. The YOY (acclimated at 11, 19, or 24EC) were placed into the thermal gradient tank at the fish's acclimated temperature and allowed a 1-hour tank-adjustment period before the 11-30EC gradient was established. GS acclimated to 11EC tended to prefer a higher temperature than their acclimation temperature, whereas those acclimated to 19, or 24EC tended to prefer temperatures somewhat lower than their acclimation temperature. GS acclimated to 24EC preferred a significantly higher temperature than those acclimated to either 19 or 11EC. Summaries of the results collected to date were presented at the GS Workshop (Weitchpec, CA, 3-22-00) and at the annual meeting of the California-Nevada Chapter of the American Fisheries Society (Ventura, CA, 3-31-00). Current efforts investigate GS swimming performance and blood-oxygen equilibria. When phase 1 and phase 2 experiments are complete, these temperature and ration-related responses should assist managers in preserving green sturgeon in the Sacramento-San Joaquin Estuary.

Task 2: Reproductive Characteristics of Wild GS (S.I. Doroshov, UC Davis, Task Leader)

Body size data, samples of gonads and fin rays have been collected from 14 female and 24 male adult green sturgeon (GS) by our Yurok tribe collaborators on the Klamath River. Histological processing of gonad samples and preparation of fin ray sections for aging have been completed and currently the descriptions and microphotography of the histological sections and scoring the fin ray sections for age are ninety-percent completed.

GS embryos and larvae from the Klamath River-collected broodstock spawning were sampled through metamorphosis for body size measurements, morphometric analyses, and photography. Fertilized eggs hatched after incubating 7 days at 15.3EC. Hatched larvae were 13.8 mm total length, had large ovoid yolk sacs and were strongly photonegative. Unlike other sturgeons, GS larvae did not exhibit a vertical swim-up behavior upon hatching. Rather, they aggregated in clumps at the bottom of the tank or swam along the outside edge of the tanks, against the water current. They are less active during the day and spend most of the time at the bottom. During night, they swim vigorously along the walls of the tank. Exogenous feeding begins at ca. 12-13 days posthatch at 18.5EC (mean water temperature). At 9 months posthatch the GS weighed 1,012 grams (mean wet weight), indicating a much faster growth rate than similar-age white sturgeon (*Acipenser transmontanus*), which weighed 500 grams at UCD and the nearby commercial farms. A manuscript describing the GS spawning, egg fertility and larval survival has been submitted to the *Transactions of the American Fisheries Society*.

Preparation for spring, 2000, work is underway. Cages to hold broodfish on the Klamath River have been repaired and gametic sampling kits have been delivered to the Yurok Tribe for the 2000 spawning season.

Task 3: Assessment of Stress and Its Impact on Reproduction (J.J. Cech, substituting for the late G.P. Moberg, Task Leader)

Development of the ability to respond to stressful events with the synthesis and release of corticosteroids (hormones that are associated with the general stress response in most vertebrates) has proven to have an irregular onset across vertebrate species. Knowledge gained from understanding when the green sturgeon (GS) develops the capability to mount a stress response

could be utilized to improve spawning and rearing techniques along with identifying the best time, in terms of stress, to transport animals. Beginning 8 days post hatch (dph) we measured the stress response, in terms of whole body corticosteroids, of young-of-the-year (YOY) GS and white sturgeon (WS) larvae to a 30-second air emersion. The corticosteroids were measured by radioimmunoassay techniques employed on whole body homogenates. Our results suggest that the green sturgeon has the ability to synthesize corticosteroids as early as 8 dph, the earliest reported maturation of the stress axis for all fishes. These interesting experiments will be repeated during spring, 2000, when more adults are planned to be spawned making new YOY available. In contrast, WS larvae did not show a significant change in corticosteroids concentration until 15 dph, which is similar to the timing reported for most "modern" (teleostean) bony fishes. In addition, we recently investigated differences in the GS's diurnal and nocturnal stress responses. We exposed groups of (ca. 6-month-old)YOY to 1-minute air emersions and collected blood and liver samples at predetermined intervals during their recovery from this standardized stress. Plasma cortisol, glucose, and lactate levels and liver glycogen levels (important indicators of physiologic stress) are all being measured in our laboratories. Besides physiologically defining the GS stress response for the first time, this study (with appropriate statistical comparisons) will quantify day and night differences. Finally, 16 individual YOY GS were chronically cannulated for repeated blood sampling with minimal sampling-related stress, held in separate tanks, and sampled before and after air emersion to detect temperature-related stress response differences. GS plasma cortisol, glucose, and lactate levels are currently being measured in our laboratories and will be compared using appropriate statistical models.

Task 4: Genetic Analysis (B.P. May, Task Leader)

This task has two objectives during phase 1 of this project, (1) to develop species-specific genetic markers for green sturgeon (GS) and white sturgeon (WS) and (2) to develop intraspecific nuclear genetic markers that could be used in a phase 2 study to differentiate GS populations. The first objective has been accomplished with two approaches. An mitochondrial (mt) DNA marker was developed that uses an Ssp1 restriction (enzyme) site presence in cytochrome B in GS that is absent in WS. Amplification and subsequent digestion with Ssp1 yields a single sequence in WS and two smaller sequences in GS. Secondly, amplified fragment length polymorphisms (AFLPs) were examined in GS and WS that showed numerous fixed differences between these species. Several of these bands were cut out of gels and sequenced. Primers were developed for one of these differences that shows a seven-base pair deletion in GS versus WS DNA. We are now in a position to determine the identity of any size sturgeon, including fry. We are continuing to develop additional interspecific markers in this fourth quarter of phase 1. Insufficient intraspecific differences were seen in AFLPs in GS to justify pursuing our second objective with AFLPs. Therefore, we have concentrated on the development of highly polymorphic microsatellite markers for GS. During quarters 2-4 of phase 1 we have been redesigning and testing primers we developed for other sturgeon species to work in GS. We have about six loci that should prove useful for population differentiation analysis in phase 2, and we have been testing them on larger numbers of samples. We will provide specific details of primer sequences, amplification conditions, and images of these and the species specific markers in the final report for phase 2. The polyploid (octoploid) derivative nature of this organism makes it very difficult to develop usable nuclear markers.

Task 5: Determination of GS Spawning Habitats and Their Environmental Conditions (R.G. Schaffter and D.W. Kohlhorst, CDFG, Task Leaders)

Field sampling began in February, 2000, and artificial substrates have been set at 6 locations in the Feather River between the Thermalito Afterbay outlet (Lat. 39° 27.23', Long. 121° 38.35') and Shanghai Bend (Lat. 39° 5.41', Long. 121° 35.93') generally downstream to upstream migrational impediments. Twice-weekly retrieval of artificial substrates have yielded no sturgeon eggs, to date. Locations for larval net sampling have been established at 3 locations and preliminary daytime and nighttime sampling has begun. Preliminary daylight larval net sampling has yielded only larval Sacramento suckers (*Catostomus occidentalis*).

Task 6: Biological Monitoring/Research and Quality Assurance Plan (J.J. Cech, Task Leader)

Plan was attached to the first quarterly report.

Task 7: Quarterly Fiscal and Programmatic Reports (J.J. Cech, Task Leader)

This is the fourth quarterly report. Because of the "no-cost" extension granted to our project, our final report for phase 1 work is due by 10-30-00.

Projected Expenses for the Next Three Months:

The estimated costs for the next quarter (April 1 - June 30, 2000) are \$28,660. S. Doroshov has already requested rebudgeting of Task 2 funds, and J. Cech and D. Kohlhorst have requested 9-month, no-cost contract extensions for Task 3, 4, and 5 funds.

Summary of Expenses (Jan. 1 through Mar. 30, 2000) and to Date (incl. Phase 1 Extens.):

Task	Q. Budg.	Q.Expen.	Q. Var.	Ph.Budg.	Ph.Expen	Balance	Explan.
Task 1	0	0	0	30140	30140	0	Spent
Task 2	12792	3000	9792	51169	50000	1169	Rebudget
Task 3	8298	694	7604	30430	13834	16596	Extens.
Task 4	10868	17572	-6704	43471	40002	3469	Extens.
Task 5	18262	7743	10519	43829	7743	36086	Extens.
Task 6	0	0	0	650	650	0	Spent
Task 7	0	0	0	325	325	0	Spent

State of California
Memorandum

To: Ms. Lauren Hastings, Contract Manager
CALFED
1416 Ninth Street, Room 1148
Sacramento, California 95814

Date: April 20, 2000

From: Department of Fish and Game

Subject: Programmatic Quarterly Report for Contract X-XXXXXX (Pumped Barge)

This report describes the work done by DFG staff during the period from July 1, 1999 through March 31, 2000. During this period DFG staff worked on the following assignments:

A. Initial Preparation for Study Implementation

During this period Mr. Kevan Urquhart left the project, and Mr. Dan Odenweller assumed the responsibility for the program, and the implementation of the CALFED agreement. We lost Mr. Bob Fujimura to a promotion to head up the Central Valley Bay-Delta Branch Fish Salvage Operations unit, and we promoted Mr. Geir Aasen to replace him. Both Mr. Doug Killiam and Mr. George Edwards left for promotions, and Mr. Mike Chotkowski left the Department during this period. We then began to rebuild the staff. Ms. Maureen McGee transferred into the position vacated by Mr. Doug Killiam, and Mr. Robert Vincik was hired for the position (which is shared with the Real Time Monitoring program) vacated by Mr. Mike Chotkowski. We are in the process of filling the last position, hopefully by June 1, 2000.

We began the procurement process for the major equipment order, the pump and motor (\$70,000), and began looking for a platform (barge or landing craft). Several alternative types and sources of platforms have been identified at this time.

We recently learned that the Department of Water Resources has withdrawn the state FY99-00 matching funds from the IEP budget, without consultation with us. At this point in time, I can only assume that these funds will be restored at a later date, however without this contribution, it is unclear whether we can pay for the pump and motor, and we clearly will not be able to begin any field work this spring.

I believe the only prudent action at this time is to request a one year delay in the planned study program, until 2001, and have halted the processing of the purchase of the pump and motor. Unfortunately, the cutoff date for major equipment purchases is now upon us, and we cannot recover from this delay during the current state fiscal year.

Ms. Lauren Hastings
April 20, 2000
Page Two

B. Draft Work Plan Preparation

Staff began to work on a draft work/quality assurance project plan for this project. This draft document will include a revision of the personnel structure, descriptions of the: 1) proposed study details; and 2) the equipment lists, a tag deployment schedule, a revised budget and work schedule, and a detailed SOP section.

The fiscal quarterly report which will be delayed, will estimate both the Departments' procurement charges, and personnel services costs, that occurred in the fourth (FY99), the first and second quarter (FY00) periods (July 1, 1999 to March 31, 2000). The most significant will be some personnel costs. The order for the pump and motor (\$75,000), has been halted.

Please keep in mind that the issuance of the official DFG invoices has lags significantly behind the end of each fiscal quarter. This is due to both our internal tracking activities, and accounting review (and corrections), which tend to delay this process. Therefore, our estimates may differ from the officially submitted, final invoices.

If you have any questions, please contact me at CALNET 8-423-3702 in Stockton, or at 4-2731 in Sacramento..

Dan Odenweller
Senior Biologist
Central Valley Bay-Delta Branch

cc: Dr. Perry Herrgesell, CVBDB
Mr. Alan Baracco, CVBDB
Mr. Geir Aasen, CVBDB
Ms. Maureen McGee, CVBDB
Mr. Sonny Olaso, CVBDB
Ms. Suzette Smythe, FASB
Mr. Dick Daniel, CALFED

6th QUARTERLY PROGRAMMATIC REPORT

April 12, 2000

Program Manager:	<u>Spencer Shepherd</u>	Phone: <u>415-778-0999 ext. 24</u>
Project Manager:	<u>Larry Nash</u>	Quarter Ending: <u>3/31/00</u>
CALFED Project #:	<u>97-N01</u>	Recipient Agreement: <u>8/28/98</u>

DELIVERABLES

Name of <u>Deliverable</u>	Due <u>Date</u>	% of Work <u>Complete</u>	Date Deliverable <u>Complete</u>
<u>Task 1 (NFWF approval on 10/8/98 with 1st revision approval on 8/4/99)</u>			
Subtask I Draft subcontract	*	100	7/2/98
Final subcontract	*	100	8/3/98
Subtask II Draft EMP and QAAP	9/30/98	100	11/9/98
Subtask III Draft subcontract	9/30/98	100	11/9/98
Final subcontract	1 week after NFWF comments	100	1/12/99
Subtask IV Quarterly Report 1	1/20/99	100	1/10/99
Subtask IV Quarterly Report 2	4/12/99	100	4/12/99
Subtask IV Quarterly Report 3	7/12/99	100	7/12/99
Subtask IV Quarterly Report 4	10/13/99	100	10/4/99
Subtask V Characterization Report	3/1/00 8/1/00 12/1/00	20	-
<u>Task 2 (NFWF approval on 8/4/99)</u>			
Subtask I Draft subcontract	*	100	6/23/99
Final subcontract	*	100	4/12/00
Subtask VI Draft Priority Target List/Data Report	11/30/99	100	

DELIVERABLES

<u>Name of Deliverable</u>		<u>Due Date</u>	<u>% of Work Complete</u>	<u>Date Deliverable Complete</u>
Subtasks VII and VIII Draft PEAP and Implement. Plan		12/23/99	100	12/23/99
Subtask IX Outreach Materials		various	25	7/01/01
Subtask X Quarterly Report 1		1/10/00	100	1/26/00
Subtask X Quarterly Report 2		4/10/00	100	4/12/00
Subtask XI Evaluation Report		11/30/00	0	-
Final Eval. Report		11/17/01	0	-
<u>Task 4 (NFWF approval on 10/8/98 with 1st revision approval on 8/4/99</u>				
Subtask I	Final subcontract	*	100	8/3/98
Subtask II	Prepare scope for Arcade Creek Watershed	4/1/99	80	-
		11/1/99		
		12/1/99		
		7/1/00		
Subtask III	Prepare scope for PERA	4/1/99	80	-
		12/1/99		
		7/1/00		

1. Narrative Description of Activities Performed During the Quarter

TASK ORDER 1: Approval and NTP with Task Order 1 was received from NFWF on 10/8/98

JANUARY

- Prepared 5th Quarterly Report.
- Prepared 3rd storm event sampling and QA/QC plan.
- Conducted 3rd storm event sampling.

FEBRUARY

- Prepared 4th storm event sampling and QA/QC plan.
- Conducted 4th storm event sampling.
- Completed data input and assessment of 1st whole effluent toxicity (WET) and in-situ toxicity event (which occurred in 11/99).
- Completed second WET and in-situ toxicity event.

MARCH

- Prepared 9th dry event sampling and QA/QC plan.
- Conducted 9th dry event sampling.
- Completed data input and assessment of 2nd WET and in-situ toxicity event (which occurred in 3/00)

TASK ORDER 2: See attached Quarterly Report from Deen and Black

TASK ORDER 4: Approval and NTP with Task Order 1 was received from NFWF on 10/8/98.

- No activity due to absence of the lead project investigator.
- Copy of deliverable has not yet been sent to CALFED/NFWF.

2. Problems and Delays Encountered

TASK ORDER 1:

- City found a replacement for John Tomko, former lead project investigator. Subcontract with Kathleen Russick has been prepared and is being submitted to CALFED for approval. Monitoring under this task continued.
- No dry event monitoring was conducted during January and February due to the nearly constant rainfall. Storm event monitoring did occur.
- Candidate locations for the high pesticide use sites have not been found. A number of potential sites have been investigated but investigators found little or no use of diazinon or chlorpyrifos. Subtask IV.F. may be modified as a result of these findings.

TASK ORDER 4:

- No activity due to absence of the lead project investigator, John Tomko. Subcontract with Kathleen Russick has been prepared and is being submitted to CALFED for approval.
- Copy of deliverable, the Tier 2 Probabilistic Ecological Risk Assessment on Arcade Creek, has not yet been sent to CALFED/NFWF. Some slight modifications may be made to the current version of that report.

3. Other Issues or Comments

- Have a nice day.

4. Project Expenses for Each of the Next Three Months

Task Order 1

Month 1: \$14,400; Month 2: \$6,300; Month 3: \$14,100

Assumes one dry event in April; one storm event in April; one toxicity monitoring event in April; preparation of toxicity evaluation report in June 2000.

Task Order 2

Month 1: \$16,500; Month 2: \$16,500; Month 3: \$9,000

Assumes subtasks II – XIII wrap up in April and June 2000; subtask IX (Implement PEAP) occurs over remaining nine months of 2000; and subtask X (Project Management) occurs evenly over remaining nine months of 2000.

Task Order 4

Month 1: \$1,410; Month 2: \$1,410; Month 3: \$1,410

Assumes contract with Kathy Russick is approved and finalized in April 2000 and work remaining under this task is completed by 7/1/00.

6th Quarter Budget--Jan. - March 2000

Total Project Estimated Completion Date: 2.5 years

Total Project Estimated Completion Date:		2.5 years		(Quarterly Budget--1/00- 3/00)								(FY '00 Budget)				(Total Budget)			
				Budget	Accrued Expenditures	Major Consultant expenditures	Sierra expenditures	AquaSci expenditures	Materials expenditures	Variance	**	Budget	Accrued Expenditures	Last Q Total Accrued	Remaining Balance	**	Budget	1999 Accrued	Accrued Expenditures
Task 1: Water Quality Monitoring - 1.5 years		\$35,800	\$17,572	\$0	\$8,330	\$8,000	\$1,242	\$18,228		\$101,304	\$17,572	\$0	\$83,732		\$184,000	\$112,896	\$130,468	\$53,532	
Schedule: FY '99 through FY '00																			
Percent Work Complete for Task 1: 71%																			
1.I.	Execute Tomko Contract	0	0					0		0	0	0	0		0	0	0	0	
1.II.	EMP and QAPP Preparation	0	0					0		-198	0	0	-198		4,000	4,198	4,198	-198	
1.III.	Execute AquaSci Contract	0	0					0		0	0	0	0		0	0	0	0	
1.IV.A.	Monthly River Sampling	400	500	0	500			-100		905	500	0	405		2,000	3,194	3,694	-1,694	
1.IV.B.	Storm Runoff Sampling	2000	440	0	440			1,560		295	440	0	-145		2,000	2,451	2,891	-891	
1.IV.C.	Monthly Runoff Sampling	2500	1,612	0	370		1,242	888		9,602	1,612	0	7,990		26,000	18,007	19,619	6,381	
1.IV.D.	Rainfall Sampling	600	0	0	0		0	600		3,387	0	0	3,387		5,000	1,863	1,863	3,137	
1.IV.E.	Arcade Creek Sampling	6500	7,020	0	7,020		0	-520		25,590	7,020	0	18,570		56,000	39,451	46,471	9,529	
1.IV.F.	High-Use Site Sampling	0	0	0	0		0	0		3,430	0	0	3,430		4,000	670	670	3,330	
1.IV.G.	WET Tests	13800	4,000	0		4,000		9,800		18,355	4,000	0	14,355		20,000	6,000	10,000	10,000	
1.IV.H.	Flow Through Bioassay	10000	4,000	0		4,000		6,000		15,000	4,000	0	11,000		15,000	4,150	8,150	6,850	
1.V.	PM and Reporting	0	0	0	0			0		24,938	0	0	24,938		50,000	32,912	32,912	17,088	
Task 2: Education and Outreach Plan - 2.3 years		\$35,539	\$52,904	\$52,904	\$0	\$0	\$0	(\$17,365)		\$189,117	\$52,904	\$0	\$136,213		\$459,500	\$22,919	\$75,823	\$383,677	
Schedule: FY '99 through FY '02																			
Percent Work Complete for Task 2: (Work began September 1, 1999) 17%																			
2.I.	Execute Dean and Black Contract	0	0	0				0		0	0	0	0		0	0	0	0	
2.II.	Review/Evaluate Existing Data	2,560	3,272	3,272				-712		4,370	3,272	0	1,098		5,120	750	4,022	1,098	
2.III.	Analyze Data/Create Workplan	2,964	1,155	1,155				1,809		1,696	1,155	0	541		4,446	2,750	3,905	541	
2.IV.	Identify Other Users	2,303	2,204	2,204				99		3,743	2,204	0	1,538		4,605	863	3,067	1,538	
2.V.	Analyze Use	2,474	770	770				1,704		3,711	770	0	2,941		3,711	0	770	2,941	
2.VI.	Develop Priority List	3,711	1,630	1,630				2,081		2,961	1,630	0	1,331		3,711	750	2,380	1,331	
2.VII.	Design PEAP	10,593	0	0				10,593		3,971	0	0	3,971		10,593	6,623	6,623	3,971	
2.VIII.	Prepare Implementation Plan	4,811	0	0				4,811		1,324	0	0	1,324		4,811	3,488	3,488	1,324	
2.IX.	Implement the PEAP	0	36,020	36,020				-36,020		135,853	36,020	0	99,834		344,253	250	36,270	307,983	
2.X.	Project Management	3,873	7,853	7,853				-3,980		15,492	7,853	0	7,639		34,855	7,446	15,299	19,556	
2.XI.	Prepare Evaluation Reports	0	0	0				0		9,247	0	0	9,247		23,776	0	0	23,776	
	Direct Salary and Benefits	2,250	0	0	0			2,250		6,750	0	0	6,750		19,619	0	0	19,619	
Task 4: Evaluation of Effects -1.0 year		\$8,085	\$0	\$0	\$0	\$0	\$0	\$8,085		\$8,742	\$0	\$2,173	\$8,742		\$20,000	\$11,915	\$11,258	\$8,742	
Schedule: FY '99																			
Percent Work Complete for Task 4: 56%																			
4.I.	Execute Tomko Contract	0	0	0				0		0	0	0	0		0	0	0	0	
4.II.	SOW for Arcade Creek model	4,790	0	0				4,790		4,790	0	0	4,790		10,000	5,210	5,210	4,790	
4.III.	SOW for Ecological Risk Assessment	3,295	0	0				3,295		3,952	0	0	3,952		10,000	6,705	6,048	3,952	
Total:		\$79,424	\$70,476	\$52,904	\$8,330	\$8,000	\$1,242	\$8,948		\$299,164	\$70,476	\$2,173	\$228,687		\$663,500		\$217,549	\$445,951	

QUARTERLY PROGRAMMATIC REPORT

Program Manager	<u>Spencer Shepherd</u>	Phone #415-778-0999 x24
Project Manager	<u>Meghan Mazzoni</u>	Phone #415-281-0432
CALFED Project #	<u>97-N02</u>	
Quarter Ending	<u>March 31, 2000</u>	

Deliverables

NOTE: The 97-N02 agreement was not fully executed until February 10, 1999.

<u>Deliverable</u>	<u>Due Date</u>	<u>% Complete</u>	<u>Date Deliverable Complete</u>
Task 1: Administrative Costs – Sacramento River Acq.			
Subtask 1: Salaries/Benefits approx. 15% of budget*			
* Need FWS and WCB to submit documentation of overhead expenses			
Subtask 2: Services approx. 36% of budget			
Deliverable 1: Appraisal cover pages			Ongoing
Deliverable 2: Survey cover pages			Ongoing
Deliverable 3: Haz Mat summaries			Ongoing
Deliverable 4: Escrow closing statements			Ongoing
Deliverable 5: Baseline reports			N/A to date
Deliverable 6: Draft and final subcontracts			Ongoing
Deliverable 7: FWS letter of assurances			Submitted for Kaiser and Koehnen land
Task 2A: Acquisition of Kaiser Property	100%		2/26/99
Deliverable 1: Recorded Deed			9/28/99
Task 2B: Acquisition of Koehnen Property	100%		8/12/99
Deliverable 1: Recorded Deed			9/28/99

Narrative

Activities Performed:

Task 1: Administrative Costs – Sacramento River Acquisition

Negotiation efforts, due diligence duties and project management pertinent to the acquisition of the Koehnen, Gunn Hill, Jensen, Southam and Repanich properties plus 12 other Sacramento River Floodplain properties currently in negotiation were performed by the Project Director and members of the senior staff.

The Koehnen property in Butte County (632 acres planted in walnuts and almonds, plus riparian) closed escrow in August with title vested in the US Fish & Wildlife Service (FWS). The Nature Conservancy (TNC) manages the property under a Cooperative Land Management

Agreement (CLMA) with FWS. TNC is currently negotiating with the Koehnen family for a lease back of the agricultural portion of the property for the crop-years 2000 and beyond. Net lease income will be used to partially offset the cost of restoration as orchard production decreases and/or trees die as a result of age, disease or flood damage. FWS will pay in lieu taxes to Butte County. TNC and the Koehnen family will pay possessory interest taxes.

The Gunn Hill property in Glenn County (54 acres planted to walnuts, 11 acres riparian), the Jensen property in Colusa County (86 acres planted to walnuts, 20 acres riparian), the Southam property in Glenn County (64.85 acres planted to prunes, 7.65 acres riparian), and the Repanich property in Tehama County (220 acres planted to walnuts, 60 acres riparian, plus improvements) are in escrow and are expected to close before the end of calendar year 1999. The Repanich property will be subdivided with the improvements and acreage not required for CALFED objectives resold subject to conservation easements.

Task 2A: Acquisition of Kaiser property

Baseline assessment and preparation of a management plan for the Kaiser property (approximately 666 acres) as an addition to the U.S. Fish & Wildlife Service Sacramento River National Wildlife Refuge are ongoing. Perpetual management will be provided by the FWS as part of its normal refuge operations consistent with CALFED objectives and the management plan. TNC currently manages the Kaiser property under a CLMA with FWS. Approximately 130 irrigated acres have been leased to Loesch Bros. for row crop farming (corn) for crop year 1999; additional acres will be leased for crop year 2000 depending upon the success of current weed control activities on the property. The net income will be used to support restoration activities on refuge lands including those purchased with CALFED funds.

Task 2B: Acquisition of the Koehnen property

The Koehnen property (approximately 632 acres) closed escrow on or about August 9, with title vesting in the United States. Baseline assessment and preparation of a management plan for the Koehnen property as an addition to the U.S. Fish & Wildlife Service Sacramento River National Wildlife Refuge are ongoing. Perpetual management will be provided by the FWS as part of its normal refuge operations consistent with CALFED objectives and the management plan. TNC currently manages the Koehnen property under a CLMA with FWS. Approximately 590 acres of almonds and walnuts will be leased to the Koehnen family for crop years 2000 and beyond. The net income will be used to support restoration activities on refuge lands including those purchased with CALFED funds.

Task 2C (Proposed): Acquisition of the Gunn Hill property

The Nature Conservancy (TNC) signed an option with Gunnar and Hilli Sevelius, dba Gunn Hill Farms, to purchase the Gunn Hill property on the west side of the Sacramento River south of Hamilton City at RM 197. Prior to opening negotiations with Gunnar and Hilli Sevelius, TNC, the United States Fish and Wildlife Service (FWS), the Wildlife Conservation Board (WCB) and the California Department of Fish and Game (DFG) reached consensus agreement to pursue acquisition of the Gunn Hill Farms.

Examination of the Gunn Hill Farms title report revealed a right of first refusal in favor of Ken Kaplan, owner of an adjoining parcel. Existence of the right of first refusal has delayed TNC's ability to exercise its option and close escrow on the Gunn Hill parcel. TNC negotiated with Ken Kaplan to obtain a release of his right of first refusal and an option on his orchard adjoining Gunn Hill. The Wildlife Conservation Board/California Department of Fish and Game favor allocation of WCB/DFG funds under CalFed 97-N02 and/or additional funds to purchase the Gunn Hill and Kaplan parcels for eventual inclusion in DFG's Pine Creek Unit. WCB has committed additional funding to complete the Kaplan acquisition in the event that CalFed 97-N02 capital funds remain after purchase of Gunn Hill and RX Ranch (see Proposed Task 2D, below).

TNC will submit Task Order 2C within the next month or two and request reimbursement for the Gunn Hill acquisition.

The Gunn Hill and Kaplan acquisitions will link the DFG Pine Creek Unit to the RX Ranch tract (see Proposed Task 2D, below) and the USFWS Kaiser tract south of RX (acquired pursuant to Task 2A) to create an 1,800 acre unfragmented riparian corridor on the west bank of the Sacramento River below Hamilton City. Glenn County and adjoining landowners actively support acquisition of the RX Ranch for conservation and the nonstructural flood control benefit of increased floodplain capacity.

Task 2D (Proposed): Acquisition of the RX Ranch property

The Nature Conservancy (TNC) signed an option with Ted and Craig Dress, dba RX Ranch, to purchase the RX Ranch on the west side of the Sacramento River south of Hamilton City at RM 194.5. Prior to opening negotiations with Ted and Craig Dress, TNC, the United States Fish and Wildlife Service (FWS), the Wildlife Conservation Board (WCB) and the California Department of Fish and Game (DFG) reached consensus agreement to pursue acquisition of the RX Ranch.

The RX Ranch Tract is within the "inner-river zone", also known as the "150 year meander zone", as those terms are defined by the SB 1086 Draft Restoration Handbook (May 1998). Acquisition of the RX Ranch Tract is essential to recreating a continuous riparian corridor along the river and reconnecting the river to its traditional floodplain.

Additionally, the RX Ranch, Gunn Hill Farms and the Kaplan tract (see Proposed Task 2C, above) are within an area that was traditionally protected from direct impact from flood waters by a privately maintained levee (commonly referred to as the "J Levee"). Originally, the J Levee began north of Hamilton City and ended just upstream of the RX Ranch which, at that time, included additional acreage north of the current tract. Several years ago the California Department of Fish and Game (DFG) purchased the northern portion of the RX Ranch, degraded the J Levee and constructed a weir across the new northern boundary of the RX Ranch. DFG hoped to reduce potential flood damage to the RX and adjoining properties (Kaplan, Bratton, Lewis, Vershagian, and Billou), however, the weir failed in a subsequent event and the RX Ranch and adjoining properties are now inadequately protected as a result of continued, persistent failure of the J Levee.

TNC is currently working with Glenn County, the Hamilton City Community Services District, and adjoining landowners to acquire sufficient land in addition to the RX Ranch to re-establish a riparian corridor, permit limited river meander, and provide land on which to relocate the J Levee. Acquisition of the RX Ranch is critical to this community based effort to restore a

functioning ecosystem and insure public safety by relocating and rebuilding the J Levee on higher ground away from the direct impact of high stage, high velocity flood flows. Glenn County and adjoining landowners actively support acquisition of the RX Ranch for conservation and the nonstructural flood control benefit of increased floodplain capacity.

TNC will submit Task Order 2D within the next month or two and request reimbursement for the RX Ranch acquisition.

Projected Expenses for Next Three Months:

Following is an estimate of costs for the next three months (April – June, 2000):

Month 1	\$2,090,000	Month 2	30,000	Month 3	\$30,000	\$2,030,000
Total for Quarter: \$2,150,000						

Title Sacramento River Floodplain Acquisition and Riparian Forest Restoration

Budget year: 00-Sep-30

Applicant: The Nature Conservancy.

Statement Quarter: 2nd

CALFED Project Number: 97-N02

Total Estimated Cost of PI \$9,879,800

Funding from Federal Bay-Delta Account

Costs contributed by The Nature Conservancy

Salaries/Benefits/Overhead 2,852.42

Phase I schedule 3 years

Total Project Estimated Cx 3 years

	PHASE I				PHASE I				PHASE I			
	(Quarterly Budget)				(FY '00 Budget)				(Three Year Budget)			
	Accrued				Accrued Remaining				Accrued Balance to			
	Budget	Expenditures	Variance	**	Budget	Expenditures	Balance	*	Budget	Expenditures	Complete	**
Task 1: Administrative Costs - Sacramento River Acquisition												
Schedule: FY '99 through FY '01												
Percent Budget Complete for Task 1: 23%												
Subtask 1 Salaries, Benefits, Overhead	15,000	14,378	622		465,160	69,998	395,162		465,160	69,998	395,162	\$200,000 of budgeted staff/overhead for WC
Subtask 2 Services	20,000	18,797	1,203		310,000	110,814	199,186		310,000	110,814	199,186	
Task 2: Acquisition of Properties	2,055,000	1,500,000	555,000	*	8,704,640	7,551,413	1,153,227		8,704,640	7,551,413	1,153,227	For capital costs only
Schedule: FY '99 through FY '01												
Percent Budget Complete for Task 1:87 %												
2A Acquisition of Kaiser Property	Acquisition completed last quarter				In Task Total				In Task Total			
2B Acquisition of Koehnen Property	Acquisition completed last quarter											
2C Acquisition of Gunn Hill Property	Task Order 2C Pending											
2D Acquisition of RX Ranch Property	Task Order 2DPending											
Task 3: Start-up Stewardship: Development of												
Monitoring & Management Plans	Task Order 3 Pending				Task Order Pending				400,000 0 400,000			
Schedule: FY '99 through FY '01												
Percent Work Complete for Task 1: 0%												
Phase I Total:	\$2,090,000	\$1,533,175	\$556,825	**	\$9,479,800	\$7,732,224	\$1,747,576	*	\$9,879,800	\$7,732,224	\$2,147,576	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Explanation of Variance in Budget :

** Have requested FWS and WCB to send in summary of expenses for Calfed reimbursement.

* Gunn Hill acquisition pending

QUARTERLY PROGRAMMATIC REPORT

Program Manager	<u>Spencer Shepherd</u>	Phone # <u>415-778-0999 x24</u>
Project Manager	<u>Meghan Mazzoni</u>	Phone # <u>415-281-0432</u>
Calfed Project #	<u>97-N03</u>	
Quarter Ending	<u>March 31, 2000</u>	

Deliverables

<u>Deliverable</u>	<u>Due Date</u>	<u>% Complete</u>	<u>Date Deliverable Complete</u>
Task 1: Restoration of 200 acres			
Subtask 1: Site analysis and planning		Subtask 1 - 100%	
Deliverable 1: Site Restoration Plan			2/3/99
Deliverable 2: Draft and final subcontracts			
Subtask 2: Site preparation and planting		Subtask 2 - pending	
Deliverable 1: Site tour, as necessary			
	11/30/99		
Deliverable 2: Draft and final subcontracts			
	11/30/01		
Task 2: Monitoring			
Deliverable 1: Draft and final monitoring plan			
	6/30/02		
Subtask 1: Measure Plant Survival			
Deliverable 1: Final restoration report			
	12/1/01		
Subtask 2: Evaluate Plant Design			
Deliverable 1: Annual report for landbird monitoring			
	1/31/00,01,02		
Deliverable 2: Evaluation of recruitment potential			
	6/30/02		
Deliverable 3: Evaluation of site selection and plant design			
	6/30/02		
Deliverable 4: Draft and final subcontract			
	6/30/02		

Subtask 3: Measure key connections between river and floodplain

Deliverable 1: Response of nutrient cycling to restoration report

6/30/02

Deliverable 2: Response of groundwater quality to restoration report

6/30/02

Deliverable 3: Soil development following restoration report

6/30/02

Deliverable 4: Draft and final subcontract

6/30/02

Narrative

Task 1: Restoration of 200 acres of riparian habitat

The Nature Conservancy (TNC) and the U.S. Fish and Wildlife Service (FWS) are working together to restore 200 acres of riparian forest on River Vista Unit site VII (River Vista VII). River Vista VII is part of the SB 1086 Conservation Area of the Sacramento River and is located on a flood-prone agricultural unit contiguous with 670 acres of previously restored riparian habitat. The purpose of restoration is to address environmental stressors by increasing the extent of native riparian forest communities along the river. Benefits of riparian habitat restoration include:

1. Increased extent of riparian forest communities to improve vegetative diversity while reducing habitat fragmentation. (Monitored by TNC under Task 2, subtask 1.)
2. Provides structurally complex habitat for neo-tropical migratory birds. River Vista VII provides migration stopover and breeding habitat. This project will enhance migratory corridor and productivity benefits and will provide superior habitat and foraging opportunities. (Monitored by PRBO under Task 2, subtask 2.)
3. Provides shaded riverine aquatic habitat for anadromous and resident fish species to enhance instream habitat. (To be monitored by CSUC under Task 2, subtask 3.)
4. Provides opportunities for local growers, and local irrigation and farm equipment companies. Farmers are valuable assets because they provide skilled restoration work as well as a commitment to and pride in the land. Restoration of riparian forests also improves adjacent farms by providing a filter strip in which flood debris and sediments are trapped. This reduces insurance claims for and dollars spent on flood-related damages. Riparian filter strips also improve water quality by reducing agricultural inputs to the river, and trapping fine sediments improves instream habitat by reducing channel aggradation. (Soil development and groundwater quality to be monitored by CSUC under Task 2, subtask 3.)

Subtask 1: Site analysis and planning

Complete

Subtask 2: Site preparation, planting and maintenance

The Nature Conservancy's Sacramento River Project applies agricultural techniques to restoration planting. Thus, restoration is conducted much like orchard farming. Local farmers and contractors are hired for plant propagation, irrigation design and installation, and site preparation, planting and maintenance.

January 1, 2000 – March 31, 2000

No activity is necessary in the winter months when the plants are dormant. Site maintenance is scheduled to begin March 22, 2000, including reinstalling the pump, repairing damaged irrigation systems, removing flood debris, and weed control.

Task 2: Monitoring

Monitoring measures TNC's and its subcontractors' success at meeting the objectives of the 97-N03 Recipient Agreement. It also provides feedback for corrective action, and suggests improvements to the planting design. Monitoring on the Project Site will accomplish three objectives: 1) measure plant survival following revegetation to ensure contract compliance and adherence to the restoration plan developed for the site, 2) measure wildlife response to the plant design and 3) measure key connections between the river and the floodplain. All proposed monitoring subtasks evaluate parameters that support Calfed objectives.

The Nature Conservancy adds value to project monitoring by linking data collection and analysis across multiple projects to provide a comprehensive regional view. Calfed 97-N03 funds will be spent on River Vista VII and at appropriate reference sites only, but will also help complete long-term, larger scale monitoring programs. For example, migratory songbirds provide an indicator of restoration success at River Vista VII, and when added to data collected at additional TNC project sites contribute to assessments of ecosystem health for the Central Valley.

A monitoring plan was drafted collaboratively with TNC staff, Calfed representatives, and California State University, Chico ecology and natural sciences faculty. The draft monitoring plan and Task Order for task two were submitted for review and subsequently signed on August 20, 1999. The monitoring plan includes three subtasks.

Subtask 1: Determine plant survival

Plant density, species composition, growth and mortality are measured regularly to ensure that planting objectives are met. Plant survival is estimated 30 days following initial planting to determine transplant survival. This provides baseline information to evaluate plant performance and determines if plants are needed for fall replanting. Subsequent monitoring is done annually in the fall to evaluate field management practices.

January 1, 2000 – March 31, 2000

No activity

Subtask 2: Evaluate plant design

The Nature Conservancy's restoration plan is designed to establish a diverse, healthy riparian forest based on the Project Site's unique physical factors and the elements needed by target species. Four parameters are measured to evaluate how well the restoration plan achieves the restoration objectives for target species use: 1) wildlife use of the revegetation site, 2) recruitment potential for aquatic elements, 3) plant response to the site's physical setting and 4) plant response to flooding. Offsite monitoring is used to establish reference conditions. Under the Task Order, monitoring for wildlife use is done each year and recruitment potential for woody debris and plant responses to environmental conditions will be done near the end of the grant period allowing plants on the restoration site time to show effects from the site conditions. Point Reyes Bird Observatory, an internationally recognized leader in songbird conservation and co-author of the nationwide Partners in Flight program, conducts wildlife use monitoring on TNC's restoration projects.

January 1, 2000 – March 31, 2000

Point Reyes Bird Observatory is scheduled to continue monitoring at River Vista in April.

Subtask 3: Demonstrate riparian/riverine interactions

The Nature Conservancy will measure indicators for assessing nutrient budgets, nutrient cycling, and transport of organic materials. These ecological attributes function on the Project Site and contribute to a healthy ecosystem. This monitoring demonstrates the link between quality riparian forest and improved instream productivity.

A benefit resulting from planning the monitoring for River Vista VII is the continuing collaboration between Sacramento River Project staff and California State University, Chico.

January 1, 2000 – March 31, 2000

A transect of wells have been set in River Vista VII and soil samples have been acquired to test pH, electrical conductivity, turbidity, nitrates and total carbon content. These wells will also be used to measure summer groundwater flows. Additional surveying is taking place in order to establish a second set of wells. Protocols have been developed to determine rates of nitrogen mineralization and currently the feasibility of analyzing carbon mineralization rates is being assessed.

Following is an estimate of costs for the next three months (April - June 2000):

Month 1 \$4,000	Month 2 \$0	Month 3 \$0	Total for Quarter \$4,000
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Title Ecosystem and Natural Process Restoration on the Sacramento River:
Active Restoration of Riparian Forest

Budget year: 00-Sep-30

Applicant: The Nature Conservancy.

Statement Quarter: 2nd

CALFED Project Number: 97-N03

Total Estimated Cost of Phase I: \$780,000
Funding from Federal Bay-Delta Acco 780,000

The Nature Conservancy project contribution to date:

Salary, Benefits and IDC 17,793
Other costs (eq. Printing) 551
TOTAL 18,343

Phase I schedule 3 years

Total Project Estimated Completion Date: 3 years

		PHASE I (Quarterly Budget)				PHASE I (FY '00 Budget)			PHASE I (Three Year Budget)			
		Accrued				Accrued Remaining			Accrued Balance to			
		Budget	Expenditures	Variance		Budget	Expenditures	Balance	Budget	Expenditures	Complete	
Task 1:	Rest. of 200 Acres of Riparian Habitat											
	Schedule: FY '98 through FY '01											
	Percent Budget Complete for Task 1: 47%											
1a	Site analysis and planning	0	0	0		6000	3,882	2,118	6000	3,882	2,118	
1b	Site preparation and planting	155000	153,505	1,495 *		600000	474,860	125,140	690000	474,860	215,140	
Task 2:	Task Order approved 8/23/99											
1a	Determine plant survival	0	0	0		0	0	0	0	0	0	
1b	Evaluate plant design	0	0	0		10000	0	10,000	34000	0	34,000	
1c	Demonstrate riparian interactions	10000	10,000	0 *		40000	10,000	30,000	50000	10,000	40,000	
Phase I Total:		\$155,000	\$153,505	\$1,495 *		\$656,000	\$488,742	\$167,258 *	\$780,000	\$488,742	\$291,258	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Please explain significant variance.

*Task 1 budget was revised and increased after submittal of last quarter's report to CALFED.

**TNC anticipates that Task 1, Subtask 2 costs will be less than anticipated due to increased efficiencies and favorable restoration conditions.

TNC has requested that CALFED approve an addendum to Task 1 to allow additional restoration on the 97-N04 site with unanticipated 97-N03 cost-savings.

**Task Order 2 approved 8/23/99.

Note: TNC is not charging staff time to this award and Task 2 costs will be subcontract costs.

QUARTERLY PROGRAMMATIC REPORT

Program Manager	<u>Spencer Shepherd</u>	Phone # <u>415-778-0999 x24</u>
Project Manager	<u>Meghan Mazzoni</u>	Phone # <u>415-281-0432</u>
CalFed Project #	<u>97-N04</u>	
Quarter Ending	<u>March 31, 2000</u>	

Deliverables

<u>Deliverable</u>	<u>Due Date</u>	<u>% Complete</u>	<u>Date Deliverable Complete</u>
Task 1: Acquisition of 80 acres		100%	
<u>Subtask 1: TNC Service contracts</u>			
Deliverable 1: Appraisal cover page			1/8/99
Deliverable 2: Survey report cover page			1/8/99
Deliverable 3: USFWS Level I report summary			9/4/98
Deliverable 4: Escrow closing statements			1/8/99
<u>Subtask 2: Phase I Assessment</u>			
Deliverable 1: Phase I Assessment			11/13/98
<u>Subtask 3: Capital costs</u>			
Deliverable 1: Copy of recorded deed			1/8/99
Task 2: Restoration of 10 acres			
<u>Subtask 1: Site analysis and planning</u>			
Deliverable 1: Site restoration plan			Completed 3/6/00
Deliverable 2: Draft and final subcontracts			Ongoing
<u>Subtask 2: Site preparation, planting, maintenance & monitoring</u>			
Deliverable 1: Site tour, as necessary			Due by 12/01
Deliverable 2: Draft and final subcontracts			Due 5/00
Deliverable 3: Annual report			Due 11/00, 12/01
Deliverable 4: Draft and final monitoring plan			Due 12/00, 12/01

Narrative

Task 1: Acquisition of 80 acres

On December 8, 1998 the acquisition of the Flynn property was completed with title vesting in the United States. The Nature Conservancy provided CalFed funds to the U.S. Fish and Wildlife Service for the purchase under the 97-N04 Recipient Agreement. The property consists of 94.55 acres and was added to the Vincent J. Flynn Unit of the Sacramento River

National Wildlife Refuge. The acquisition also included a levee located on the eastern boundary of the property and rights to an easement to maintain a levee on adjacent property.

Task 2: Restoration of 10 acres

During the last quarter restoration planning was completed. TNC staff mapped the site and began erosion monitoring with a Global Positioning System. The site has eroded approximately ten acres since acquisition and continues to erode at a very high rate. A restoration plan detailing the planting design and fieldwork was completed by TNC and approved by the Sacramento River National Wildlife Refuge on March 6, 2000. Site preparation and planting subcontracts are currently being drafted.

Following is an estimate of costs for the next three months (April – June 2000):

Month 1 \$2,000	Month 2 \$2,500	Month 3 \$20,000	Total for Quarter \$24,500
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**Title Ecosystem and Natural Process Restoration on the Sacramento River:
 A Meander Belt Implementation Project**

Budget year: 00-Sep-30

Applicant: The Nature Conservancy.

Statement Quarter: 2nd

CALFED Project Number: 97-N04

Total Estimated Cost of Ph \$898,700
Funding from Fe 898,700

(In-Kind Services would be listed here if applicable- note: Detail of the service provide would be included.)

Phase I schedule 3 years

Total Project Estimated Co 3 years

		PHASE I (Quarterly Budget)				PHASE I (FY '00 Budget)				PHASE I (Three Year Budget)			
		Accrued				Accrued Remaining				Accrued Balance to			
		Budget	Expenditures	Variance	**	Budget	Expenditures	Balance	**	Budget	Expenditures	Complete	**
Task 1:	Acquisition of Flynn property Schedule: FY '98 through FY '99	Task 100% Complete				824500	\$823,244	\$1,256		824500	\$823,244	\$1,256	
Task 2:	10 ac restoration Schedule: FY'99 through FY'2001	24500	1,339	23,161		74200	2,832	71,368		74200	2,832	71,368	**
Phase I Total:		\$24,500	\$1,339	\$23,161		\$898,700	\$826,076	\$72,624		\$898,700	\$826,076	\$72,624	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Please explain significant variance.

** Implementation of Task Order 2 was delayed until Task Order 2 was approved by NFWF/Calfed on 2/1/00.

Under Task Order 2, TNC requested a line item change of \$14,200 from Task 1 to Task 2.

Quarterly Programmatic Report Mill Creek Restoration Project

Program Manager Spencer Shepard Phone: 415-778-0999
 Project Manager Meghan Mazzoni Phone: 415-281-0432
 CALFED Project # #97-N08
Quarter Ending – March 2000

Deliverables

Note: The 97-NO8 agreement was executed in December, 1998

<u>Deliverable</u>	<u>Due Date</u>	<u>% Completion</u>	<u>Date Complete</u>
--------------------	-----------------	---------------------	----------------------

Task 1 – Site Planning & Preparation (due date extended to June 2000)

Subtask 1: Site Acquisition

#1 – Real-estate Option	1/99		1/8/99
#2 – Copy of Deed	3/00		4/12/99
Draft Conservation Easement	3/00		12/01/99
#3- Letter of Assurance	3/00		01/03/00

Subtask 2: Site Planning

#1 – Site Plan	2/99		2/9/99
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Subtask 3: Site Preparation

#1 - Completion of Site Prep	3/2000		Pending*
#2 - Draft and final subcontracts	3/2000		Pending*
#3 - Summary report	6/2000		Pending*

*TNC extended deadlines for Task One to provide more time to plant native grass and replant plants which did not survive year 1.

Task 2 – Planting and Irrigation Installation (due date extended to June 2000)

Subtask 1 Plant collection and propagation

#1 – Plant collection and prop	4/99		3/99
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Subtask 2: Irrigation

#1 - Install Irrigation System	3/99	3/99
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Subtask 3: - Planting

#1 – Plant Summary Report (Include Irrigation Map)	6/99	1/3/99
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Task 3 – Maintenance and Monitoring

Subtask 1 Maintenance

#1 Quarterly report	6/30/01	Pending
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Subtask 2 Monitoring

#1 Monitoring protocol	5/99	Draft submitted
#2 Annual monitoring reports	6/01	Pending

NARRATIVE

Task 1 : Site Planning and Preparation

The Nature Conservancy completed acquisition of the site on Dec. 28,1998. The deed was recorded and the draft easement is completed. The site plan was submitted to NFWF on 2/9/99. A letter of assurance was sent to CalFed on 1/03/00.

Task Order One was modified to include planting native grass at the site. Native grass seed planted in December. The seed germinated with the first winter rains and it is now growing successfully.

Task 2 – Planting and Irrigation Installation

Valley Oak acorns which were planted in December are beginning to germinate. Also 40 cuttings were replaced at sites where they failed to take this past year. Other re-plants are being planned for April. Container stock of coffee berry and elderberry have been grown and will be planted with the help of Los Molinos School District student.

Task 3 – Maintenance and Monitoring

Because this is the winter quarter and plants were dormant, there was little maintenance needed. TNC has hired two seasonal internees to begin spring maintenance on the site as well as assist in monitoring. They begin work on April 10th.

Projected expenses for next quarter

Month 1	Month 2	Month 3	Total
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Title **Mill Creek Riparian Restoration Project**

Budget year: 2000

Co-applicants: Mill Creek Conservancy and The Nature Conservancy

Statement Quarter: Mar-00

CALFED Project Number: 97-N08

Total Estimated Cost of Phase I: \$69,000

Funding from Federal Bay-Delta Account 69,000

(In-Kind Services would be listed here if applicable- note: Detail of the service provide would be included.)

Phase I schedule 3 years

Total Project Estimated Completion Date: 3 years		PHASE I (Quarterly Budget)			PHASE I (FY '00 Budget)			PHASE I (Three Year Budget)		
		Accrued			Accrued Remaining			Accrued Balance to		
		Budget	Expenditure	Variance *	Budget	Expenditures	Balance **	Budget	Expenditures	Complete **
Task 1:										
Schedule: FY '98 through FY '99										
Percent Budget Completed for Task: 24%							**	12,999	4,102	8,897
1a	Site Acquisition	0	0	0	657	657	0	657	657	0
1b	Site Planning	0	0	0	3,727	1,219	2,508	3,727	1,219	2,508
1c	Site Preparation	1,000	1,000	0	8,615	2,226	6,389	8,615	2,226	6,389
Task 2:										
Irrigation installation and planting										
Schedule: FY '98 through FY '00										
Percent Budget Completed for Task : 20%							**	31,012	6,100	24,912
1a	Plant collection and propagation	0	0	0	2,770	2,021	749	5,540	2,021	3,519
1b	Irrigation installation	0	0	0	5,770	2,021	3,749	11,540	2,021	9,519
1c	Planting	0	0	0	6,966	2,059	4,907	13,932	2,059	11,873
Task 3:										
Maintenance and Monitoring										
Schedule: FY '98 through FY '01										
Percent Budget Completed for Task : 14%								24,989	3,694	21,295
1a	Maintenance and Monitoring	100	95	5	9,017	1,752	7,265 **	18,033	1,847	16,186
1b	Monitoring	100	95	5	3,478	1,752	1,726	6,956	1,847	5,109
Phase I Total:		\$1,200	\$1,190	\$10	\$41,000	\$13,705	\$27,295 **	\$69,000	\$13,896	\$55,104

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Please explain significant variance.

Not all labor costs have been captured yet for Task 3. TNC also expects to finish under budget because the original budget was based on large-scale project costs and because this project is so small TNC has found unanticipated cost-savings (example: able to use existing well, lower project management costs, more comprehensive use of volunteers). Also, TNC was fortunate to experience good growing conditions.

QUARTERLY PROGRAMMATIC REPORT

Program Manager	<u>Spencer Shepherd</u>	Phone <u>415-778-0999 x 24</u>
Project Manager	<u>Richard M. Rhoads</u>	Phone <u>925-944-5411</u>
CALFED Project #	<u>97-N12</u>	
Quarter Ending	<u>3/31/00</u>	

		Deliverables		
	<u>Name of Deliverable</u>	<u>Due Date</u>	<u>% of Work Complete</u>	<u>Date Deliverable Complete</u>
Task Order 1				
	<u>Subtask 1.01a Initiate Project</u>			
	Meeting Minutes, 1/12/99	ongoing	100%	03/19/99
	Meeting Minutes, 3/02/99	ongoing	100%	03/31/99
	<u>Subtask 1.01b Site Field Review</u>			
	Site Survey and Field Notes	2 weeks	100%	03/19/99
	<u>Subtask 1.01c Prepare Project Description</u>			
	CEQA Project Description	03-01-99	100%	03/26/99
	<u>Subtask 1.01d Prepare Administrative Draft IS/ND</u>			
	Administrative Draft IS/ND	04-12-99	100%	05/06/99
	<u>Subtask 1.02 Prepare Draft IS/MND</u>			
	Draft IS/MND	05-14-99	99%	
	<u>Subtask 1.03a Prepare Mitigation Monitoring Plan</u>			
	Mitigation Monitoring Plan (Draft)	05-14-99	99%	
	<u>Subtask 1.03b Prepare Biological Monitoring Plan</u>			
	Biological Monitoring Plan (Draft)	12-29-99	0%	
	<u>Subtask 1.04 Respond to Public Comments on IS/MND and Certification</u>			
	Respond to Comments	05-28-99	99%	
	<u>Subtask 1.06 Obtain Clean Water Act Permit</u>			
	Obtain Clean Water Act Permit	12-29-99	0%	

Quarterly Programmatic Report

1/4/00

Page 2 of 3

<u>Name of Deliverable</u>	<u>Due Date</u>	<u>% of Work Complete</u>	<u>Date Deliverable Complete</u>
Task Order 2			
<u>Subtask 1.05 Support for CEQA Documentation</u>			
Management Services for JSA	ongoing	ongoing	n/a
<u>Subtask 1.06 Support for Permit Application</u>			
Drawings and Figures	10-29-99	0%	
<u>Subtask 1.07 Prepare Basis of Design</u>			
Draft Basis of Design	03-02-99	100%	9/13/99
<u>Subtask 1.08 Prepare PS&E, 60%</u>			
Geotechnical Report & PS&E 60%	06-30-99	100%	2/11/00
<u>Subtask 1.09 Prepare PS&E, 90%</u>			
PS&E 90% Complete	11-01-99	0%	
<u>Subtask 1.10 Prepare PS&E, 100%</u>			
PS&E 100% Complete	11-30-99	0%	
<u>Subtask 1.11 Prepare PS&E, Final</u>			
Final PS&E	12-30-99	0%	
<u>Subtask 1.12 Write and Manage Subcontracts</u>			
Copies of Contracts	01-13-99	100%	03-9-99
<u>Subtask 1.13 Quarterly Progress Reports</u>			
2nd Quarter FY99 Report	04-10-99	100%	04-19-99
3rd Quarter FY99 Report	07-12-99	100%	07-16-99
4th Quarter FY99 Report	10-10-99	100%	10-05-99
1st Quarter FY00 Report	1-10-00	100%	1-10-00

Narrative

1. Description of activities performed during the quarter, by task.

Documents for the 60% Design were submitted for review; the items included plans, technical specifications, estimate of construction cost and geotechnical report.

2. Problems and delays encountered by task.

Referring to the previous quarterly report, the request for incorporating a recreational component into the project has been authorized by CALFED. This will impact the schedule due to the need to re-circulate the environmental document with a revised project description. Estimate of the delay is 6 to 9 months.

3. Other issues or comments.

We have recently received the authorization to incorporate a recreational component into the project. The additional budget is not reflected in this quarterly report. Work will include revising the construction documents as well as revising and re-circulating the environmental document.

We are continuing to pursue funding for construction through the CALFED PSP process.

4. Please identify your projected expenses for each of the next three months in the following quarter to assist in the timing of State bond sales that fund this project.

Month 1 \$5,000 Month 2 \$10,000 Month 3 \$15,000 Total for quarter \$30,000

Title Franks Tract State Recreation Area Wetlands Habitat Restoration
Applicant: Moffatt & Nichol Engineers
CALFED Project Number: 97-N12

Budget year: 2000
Statement Quarter: 1

Total Estimated Cost of Phase I: \$231,500
 Funding from Federal Bay-Delta Account 231,500
 Any other Funding? 0

Note: (In-Kind Services would be listed here as a total amount. Details of the service provide would be included.)

Task I schedule 1 year
 Task II schedule 1 year
 Total Project Estimated Completion Date: 2 years

			PHASE I (Quarterly Budget) 2nd Qtr FY '00				PHASE I (FY '00 Budget)				PHASE I (Three Year Budget)			
			Budget	Accrued Expenditures	Variance	**	Budget	Accrued Expenditures	Remaining Balance	**	Budget	Accrued Expenditures	Balance to Complete	**
Task 1:		60.51%	\$0.00	\$4,844.51	(\$4,844.51)	1	\$24,534.52	\$0.00	\$24,534.52		\$100,278.00	\$60,676.48	\$39,601.52	
	Schedule: FY '98 through FY '99													
	Percent Work Complete for Task 1:													
1a	Prepare Administrative Draft Initial Study	95.46%		\$4,844.51	(\$4,844.51)		\$2,012.85		\$2,012.85		\$44,302.00	\$42,289.16	\$2,012.85	
1b	Prepare Draft Initial Study	125.08%					\$1,419.30		\$1,419.30		\$13,657.00	\$12,237.71	\$1,419.30	1
1c	Prepare Mitigation Monitoring Plan	87.76%					\$249.62		\$249.62	1	\$2,039.00	\$1,789.39	\$249.62	1
1d	Respond to Public Comments on IS/MND	89.20%					\$527.77		\$527.77		\$4,888.00	\$4,360.24	\$527.77	
1e	Certify CEQA Documents	0.00%					\$5,258.00		\$5,258.00		\$5,258.00	\$0.00	\$5,258.00	
1f	Prepare Permit Applications	0.00%					\$15,067.00		\$15,067.00		\$30,134.00	\$0.00	\$30,134.00	
Task 2:		68.46%	\$0.00	\$5,807.98	(\$5,807.98)		\$41,099.29	\$45,131.10	(\$4,031.81)		\$164,222.00	\$106,622.71	\$57,599.29	
	Schedule: FY '98 through FY '99													
	Percent Work Complete for Task 2:													
2a	Prepare Basis of Design - Engineering	100.00%					\$0.00	\$0.00	\$0.00		\$17,072.00	\$17,072.00	\$0.00	
2b	Prepare Plans, Specs & Estimates, 60%	100.00%					(\$16,500.00)	\$38,419.41	(\$54,919.41)		\$88,647.00	\$88,647.00	\$0.00	
2c	Prepare Plans, Specs & Estimates, 90%	23.59%		\$5,807.98	(\$5,807.98)		\$27,552.29	\$6,711.69	\$20,840.60		\$28,456.00	\$903.71	\$27,552.29	
2d	Prepare Plans, Specs & Estimates, 100%	0.00%					\$21,020.00	\$0.00	\$21,020.00		\$21,020.00	\$0.00	\$21,020.00	
2e	Prepare Plans, Specs & Estimates, Final	0.00%					\$9,027.00	\$0.00	\$9,027.00		\$9,027.00	\$0.00	\$9,027.00	
2f	Write and Manage Subcontracts	n/a					\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$0.00	
2g	Quarterly Reporting	n/a					\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$0.00	
Task 3:			\$0.00	\$0.00	\$0.00		\$0.00		(\$4,031.81)		\$0.00	\$0.00	\$0.00	
	Schedule: FY '98 through FY '99													
	Percent Work Complete for Task 3:													
3a														
Phase I Total:			\$0.00	\$10,652.49	(\$10,652.49)		\$65,633.81	\$45,131.10	\$20,502.71		\$264,500.00	\$167,299.19	\$97,200.81	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

** Please explain significant variance.

** **Explanation of Variance in Budget :**

1 Currently negotiating modification to adjust budget between subtasks.

QUARTERLY PROGRAMMATIC REPORT

Program Manager Spencer Shepherd Phone 415-778-0999 x 24
 Project Manager Becky Waegell
 CALFED Project # 97-N14A
 Quarter Ending March 31, 2000

Deliverables				
	Name of Deliverable	Due Date	% of Work Complete	Date Deliverable Complete
Task 1	Acquisition of 2947 acres in Cosumnes River lower floodplain			
			100%	6/99
Task 3	Initial Management Activities		approx 35%	ongoing
	Subtask 1 Surveys and Restoration Plan			
	Deliverable 1	Final reports on Archeological and Historical Surveys		ongoing
	Deliverable 2	Final reports on Biological Surveys		ongoing
	Deliverable 3	Restoration Plan for Park, Whaley		ongoing
	Deliverable 4	Riparian, rangeland and bird monitoring plans		ongoing
	Deliverable 5	Drafts and final of subcontracts		ongoing
	Subtask 2 Infrastructure Improvements			
	Deliverable 1	Invoices from cleanup and demolition of Castello Dairy (Park property)		complete
	Deliverable 2	Invoices from fence construction on Park property		ongoing
Task 4	Purchase of Additional floodplain and floodplain-linked properties (including Woods property)			
	Subtask 1 Woods Acquisition		100%	9/99
	Deliverable 1	Survey/ HazMat cover page		9/99
	Deliverable 2	Closing Statement		9/99
	Deliverable 3	Copy of Deed		9/99
	Deliverable 4	Easement or Assurance letter		pending resale/transfer
	Subtask 2 Service Contracts – stewardship Woods property			
	Deliverable 1	Vendor invoices	12/00	Ongoing
	Deliverable 2	Preliminary site plan	12/00	Ongoing
	Deliverable 3	Monitoring report	12/00	Ongoing

Narrative

1. Description of activities performed during the quarter, by task.

Task 1: Acquisition of 2,947 acres in the Cosumnes River's lower floodplain.

Acquisitions complete. Final report submitted with 1999, 3rd quarter, Programmatic Report.

Task 3: Initial clean-up and repair of 5 properties and installation or repair of irrigation systems. Conduct initial biological monitoring and archeological surveys.

-Subtask 1 has been signed.

- Biological monitoring subcontract has been signed, and biological monitoring work has begun on Park, Whaley, Denier, and Shaw properties.
- Archeological field work has been completed. Waiting on final report.

-Subtask 2 has been signed.

- Clean-up of the Castello dairy (Park property) has been completed.
- Fencing contract has been signed, work will begin at the end of March or when weather permits.
- Pipeline installation RFB package has been sent to CalFed for approval.

Task 4: Complete Purchase of additional floodplain and floodplain linked properties, including the Woods property (153 acres). -Task Order 4 has been signed by CalFed.

-Subtask 1 The Woods property has been purchased protecting seasonal wetlands and grassland habitat.

-Subtask 2 The Woods property stewardship activities will commence in the next quarter.

2. Problems and delays encountered by task:

-Task Order 3-subtask 2 programmatic activities were delayed by CalFed due to lack of protocol for Public Works contracts.

-Task Order 4 negotiations were delayed by CalFed. Delay in execution of the Task order resulted in a delay of reimbursement to TNC, causing TNC to incur interest expense.

3. Other issues or comments:

4. Projected expenses for the next three months:

Month 1 \$5,000 Month 2 \$25,000 Month 3 \$ 21,000 Total for quarter \$ 51,000

Title **COSUMNES RIVER FLOODPLAIN ACQUISITION AND MANAGEMENT**

Budget year: 30-Sep-00

Co-applicants: Nature Conservancy/Wildlife Conservation Board
 CALFED Proj. #: 97N14A

Statement Quarter: 31-Mar-00

Total Estimated Cost of Phase I: \$1,985,100
 Funding from Federal Bay-Delta Account \$1,985,100

(In-Kind Services would be listed here if applicable- note: Detail of the service provide would be included.)

Phase I schedule 3 years

Total Project Estimated Completion Date: 3 years		PHASE I (Quarterly Budget)				PHASE I (FY '00 Budget)				PHASE I (Three Year Budget)			
		Budget	Accrued Expenditures	Variance	**	Budget	Accrued Expenditures	Remaining Balance	**	Budget	Accrued Expenditures	Balance to Complete	**
Task 1:	Acq. Of 2,947 Acres - Cosumnes	\$0	(\$10,499)	\$10,499		\$11,841	\$671	\$11,170		\$51,760	\$40,610	\$11,150	
Task 3:	Mgmt Activities Park, Whaley, Denier, Shaw												
	Subtask 1: Initial Management Activities	\$20,000	\$19,150	\$850		101,250	26,799	\$74,451		135,000	28,423	\$106,577	
	Subtask 2: Infrastructure Improvements	\$76,870	\$75,706	\$1,164		230,610	80,924	\$149,686		307,480	90,924	\$216,556	
Task 4:	Acquisition, additional floodplain properties												
	Subtask 1 Woods Acquisition	\$0	\$0	\$0		\$461,050	\$463,422	-\$2,372		461,050	463,422	(\$2,372)	
	Subtask 2 Woods Stewardship	\$0	\$0	\$0		56,850	0	\$56,850		75,800	0	\$75,800	
Phase I Total:		\$96,870	\$84,357	\$12,513		\$861,601	\$571,816	\$289,785		\$1,031,090	\$623,379	\$407,711	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

**** Explanation of Variance in Budget :**

Task 1- Expenditures have been reduced by those amounts incurred prior to 1/1/98
 Task 4- Acquisition costs on Woods property exceeded budget

QUARTERLY PROGRAMMATIC REPORT

Program Manager Spencer Shepherd Phone 415-778-0999 x 24
 Project Manager Jim Staker
 CALFED Project # 98-N01
 Quarter Ending December 31, 1999

Deliverables				
	<u>Name of Deliverable</u>	<u>Due Date</u>	<u>% of Work Complete</u>	<u>Date Deliverable Complete</u>
Task 1	Data Col. TM*	Nov 30	100	Jan 3, 2000
Task 2	Base Map	Dec 31	40	Estimated Jan 31, 2000
Task 3	Geotech Report	Dec 31	30	Estimated Jan 31, 2000
Task 4	Alternatives TM	Nov 30	0	Jan 3, 2000
Task 5	Selected Alt. TM	Nov 30	0	Jan 3, 2000
Task 6	Report	Nov 30	0	Jan 3, 2000
Task 7	Quarterly Reports	Nov 30	20	Jan 3, 2000

*TM = Technical Memorandum

Narrative

1. Description of activities performed during the quarter, by task.

Task 1 – Performed site visit to review site conditions and take photographs for future reference. Copied/reviewed pump station design drawings. Collected/analyzed water demand/pumping records. Visited two other fish screens to discuss design problems/solutions with screen operators.

Task 2 – Downloaded 2 foot topographic mapping from US Army Corps of Engineers web site. Integrated mapping into other previously prepared mapping. Surveyed pumpstation, buildings, and structures at project site.

Task 3 – Identified a geotechnical engineer with extensive experience around Sacramento River levees. Prepared subcontract for geotechnical engineer. Began geotechnical evaluation for preliminary foundation report.

Task 7 – Performed project status and budget tracking.

2. Problems and delays encountered by task.

Task 2 – Experienced a delay in completing the survey of the Pump Station site due to nonavailability of survey crew.

3. Other issues or comments.

None

4. Please identify your projected expenses for each of the next three months in the following quarter to assist in the timing of State bond sales which fund this project.

Month 1 \$15,000 Month 2 \$25,000 Month 3 \$25,000 Total for quarter \$65,000

Title Reclamation District 2035 Fish Screen Project
Applicant: RD 2035 - James Staker, General Manager
CALFED Project Number: 98N01

Budget year: 2000
Statement Quarter: 1

Total Estimated Cost of Phase I: \$115,000
Funding from Federal Bay-Delta Account 100,000
In-Kind Services 15,000

Phase I schedule 1 year

Total Project Estimated Completion Date: 1 years

Total Project Estimated Completion Date: 1 years		PHASE I (First Quarterly Budget, Oct - Dec)				PHASE I (FY '2000 Budget)			PHASE I (Three Year Budget)				
		Budget	Accrued Expenditures	Variance		Budget	Accrued Expenditures	Remaining Balance	Budget	Accrued Expenditures	Balance to Complete		
Task 1:	Data Collection and Site Visit	\$5,000	\$6,765	(\$1,765)	**	\$5,000	\$6,765	(\$1,765)	**	\$5,000	\$6,765	(\$1,765)	**
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 1: 100%												
Task 2:	Site Surveying	\$4,000	\$2,309	\$1,691		\$8,000	\$2,309	\$5,691		\$8,000	\$2,309	\$5,691	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 2: 40%												
Task 3:	Geotechnical Investigation	\$4,000	\$232	\$3,768		\$8,000	\$232	\$7,768		\$8,000	\$232	\$7,768	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 3: 30%												
Task 4:	Fish Screen Alternatives Evaluation	\$0	\$0	\$0		\$55,000	\$0	\$55,000		\$55,000	\$0	\$55,000	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 4: 0%												
Task 5:	Selected Alternative	\$0	\$0	\$0		\$10,000	\$0	\$10,000		\$10,000	\$0	\$10,000	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 5: 0%												
Task 6:	Feasibility Report	\$0	\$0	\$0		\$8,000	\$0	\$8,000		\$8,000	\$0	\$8,000	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 6: 0%												
Task 7:	Project Management	\$1,000	\$529	\$471		\$6,000	\$529	\$5,471		\$6,000	\$529	\$5,471	
	Schedule: FY '98 through FY '99												
	Percent Work Complete for Task 7: 20%												
Phase I Total:		\$14,000	\$9,835	\$4,165		\$100,000	\$9,835	\$90,165		\$100,000	\$9,835	\$90,165	

We budget to the Sub-task level only if they are active during the Quarter in question. If a SUBTASK is complete, the SUBTASK cost rolls-up into the Task level.

**** Explanation of Significant (greater than \$1,000) Variance in Budget : (if any)**
 Task 1 The data collection effort required more time than originally budgeted.
 Task 2 The surveyor was unavailable until January, so his billings have been delayed.
 Task 3 The geotechnical subconsultant has not submitted an invoice yet.

QUARTERLY PROGRAMMATIC REPORT

Program Manager: Spencer Shepherd, phone: (415) 778-0999, email: shepherd@nfwf.org
Project Manager: Joseph J. Cech, Jr., phone: (530) 752-3103, email: jjcech@ucdavis.edu
CALFED Project #: 99-N02
Quarter Ending: April 1, 2000

Deliverables

Note: The project #99-N02 agreement was not fully executed until March 15, 2000. This quarterly report covers the period from February 16, 2000 - March 31, 2000 (1.5 months).

<u>Deliverable</u>	<u>Due Date</u>	<u>% Completed</u>	<u>Date Deliverable Complete</u>
Task 1 (Report on operation, maintenance, and calibration of the Fish Treadmill)	March 30, 2001	11%	
Task 2 (Report on biological experiments using the Fish Treadmill)	March 30, 2001	11%	
Task 3 (Report on fish collection)	March 30, 2001	11%	
Task 4 (Draft Biological Monitoring/Research Plan)	February 16, 2000	100%	April 10, 2000
Task 5 (Quarterly fiscal and programmatic reports)	March 30, 2001	20%	
Task 6 (Final technical reports)	May 30, 2001	0%	

Narrative

Task 1: Fish Treadmill operation, maintenance, and calibration (M. L. Kavvas, Department of Civil and Environmental Engineering, UC Davis, Task Leader)

Fish Treadmill operation activities included controlling, monitoring, and adjusting (as necessary) of water flow conditions (i.e., approach and sweeping velocities, and water depth), water temperature, and other water quality variables (e.g., dissolved oxygen concentration, pH, and total ammonia). A total of 33 biological experiments were conducted during this quarter and, for all, these variables were within acceptable ranges (as defined by the Biological Monitoring/Research Plan, BM/RP, attached). Three scheduled experiments were canceled because of unacceptable Fish Treadmill water temperatures (2 experiments) or a power failure (1 experiment).

Fish Treadmill maintenance performed during this quarter included flushing and

replacement of the Fish Treadmill water supply stored in the underground sump (required to maintain acceptable water quality), replacement of damaged supporting wheels of the outer rotating screen, and repair of the rotating drum on the outer screen.

The SonTek acoustic Doppler acoustic velocimeter was calibrated and the discharge readings of the ultrasonic water flow meter were verified using the outer circular weir inside the Fish Treadmill tank.

As required by the California Regional Water Resource Control Board (CRWRCB), the quantity and quality of the water released from the Hydraulics Laboratory fish holding tanks was monitored and reported to CRWRCB (monthly).

In addition to these activities, Hydraulics Laboratory engineers provided engineering services to the biologists, modifying and replacing electrical wiring of view plates used in biological experiments, advising on the fish releasing container design, and designing and constructing new attachment/supports for night vision goggles used in nighttime experiments.

Task 2: Biological Experiments (J. J. Cech, Jr., Department of Wildlife, Fish, and Conservation Biology, UC Davis, Task Leader)

During this quarter (since 2-16-00, when CALFED funding became available), 33 biological experiments were conducted (delta smelt, 6-8 cm SL: 7 experiments, chinook salmon, 6-8 cm SL: 5 experiments, chinook salmon, 4-6 cm SL: 19 experiments, steelhead, < 4 cm SL: 2 experiments). All pre- and post-experiment conditions and experimental protocols were acceptable as defined by the BM/RP (attached). Experiments using 6-8 cm SL fish were also used for physiological stress response measurements. Plasma samples from some of these fish were frozen for later analysis.

Computer-assisted motion analyses (using Peak Performance Technologies, Inc. motion analysis system) of video tape records from experiments conducted earlier this year was completed for 21 experiments with delta smelt and splittail.

Data entry and analyses continued for experiments conducted earlier this year and during the previous year. Screen contact rate descriptive statistics were generated for 110 experiments with chinook salmon, and 180 experiments with splittail. All health assessment data on previous experiments with delta smelt, chinook salmon and splittail (total of 327 experiments) were updated to include new health assessment indices.

Task 3: Fish Collection (G. Aasen, California, Department of Fish and Game, Stockton Bay/Delta Office, Task Leader)

During this quarter, we collected 500 chinook salmon (parr) from Nimbus Hatchery and 1,000 Steelhead (fry) from Coleman Hatchery. As required by the BM/RP, these fishes were subjected to prophylactic treatments for 10 days and held for another 10 days before being used for biological experiments.

Task 4: Biological Monitoring/Research Plan (J. J. Cech, Jr., Department of Wildlife, Fish, and Conservation Biology, UC Davis, Task Leader)

The Biological Monitoring/Research Plan (BM/RP) is attached to this report for CALFED

review and approval.

Task 5: Quarterly reports (J. J. Cech, Jr., Department of Wildlife, Fish, and Conservation Biology, and M. L. Kavvas, Department of Civil and Environmental Engineering, UC Davis, Task Leaders)

This is the first quarterly report. It covers the period of February 16, 2000 - March 31, 2000 (1.5 months).

Task 6: Final technical reports (J. J. Cech, Jr., Department of Wildlife, Fish, and Conservation Biology, and M. L. Kavvas, Department of Civil and Environmental Engineering, UC Davis, Task Leaders)

Final technical reports for the hydraulic and biological studies using the Fish Treadmill will be submitted May 30, 2001.

Projected Expenses for the Next Three Months:

The estimated costs for next three months (April 1, 2000 - June 1, 2000 are \$192,889.

Summary of expenses (February 16, 2000 - March 31, 2000) and to date (first 1.5 months of project).

Task	Quarter Budget	Quarter Expenditures	Quarter Variance	Project budget	Project expenditures	Balance	Explanation
Task 1	30369	30369	0	276082	30369	245713	start-up
Task 2	41265	4300	36965	371384	4300	367084	start-up
Task 3	0	0	0	145520	0	145520	hatchery collections
Task 4	4898	4898	0	4898	4898	0	draft completed
Task 5	2512	2512	0	12558	2512	10046	1 st of 5 completed
Task 6	0	0	0	12558	0	12558	N/A

CALFED Quarterly Progress Report

Program Manager: Spencer Shepherd Phone 415-778-0999x24

Project Manager: Dr. Jeffrey Mount Phone 530-754-9133

CALFED Project #: 99-NO6

Quarter ending: April, 2000

Narrative

Introduction

The Recipient Agreement was signed by NFWF and the University during the first week in January. During the preceding year and a half, UCD researchers had initiated (principally under the sponsorship of the USFWS and the Packard Foundation) an array of activities to provide a foundation for long-term monitoring and assessment in the Cosumnes and Mokelumne watersheds. Because the CALFED project is building on this base, this first quarter is essentially a period of transition. Many of the activities reported below began the year under other sponsorship, and will gradually be continued and expanded under the CALFED grant.

Task 1 – Hydrology (L. Kavvas, G. Fogg)

Subtask a: Development of watershed hydrologic model for Cosumnes River basin.

In the last quarter, we were focused on hydrologic modeling of the upland watersheds in Cosumnes River basin. First, the data availability for hydrologic modeling of the upper Cosumnes River basin was examined. The Camp Creek watershed, which is located in the upstream of North Fork of the Cosumnes River, has been chosen for initial analysis. A GIS database for the Camp creek watershed was established using the available 30 meter DEM data set. Soil, forest, land use and land cover data have been added to the GIS database. Second, the physical and hydrologic characteristics of Camp Creek, such as precipitation, temperature, and streamflow data of 1998, were analyzed. In order to examine the hydrologic conditions in the winter rain season, we took a field trip to the upstream of Cosumnes River and collected first hand information. Third, the development of a stream network routing program, which is an important component of a large-scale watershed model, has been started. Modeling computation units (hillslopes and stream reaches) in Camp Creek watershed were delineated for initial analysis.

Subtask b: Groundwater Hydrology.

Field and modeling investigations are being conducted to determine streamflow gains and losses resulting from groundwater interaction and to estimate potential effects of groundwater management and floodplain inundation on streamflow. During the first quarter of this grant, modeling of hypothesized perched aquifer interaction and regional aquifer changes has been initiated. Geologic characterization of the lower Cosumnes basin

is also being performed using drillers logs and shallow coring. Particular emphasis is on identifying regionally extensive paleosols that may function as perching layers.

A groundwater overdraft condition exists in the watershed beneath the Central Valley floor. However, preliminary results of regional groundwater modeling analysis suggest that a 50% reduction in pumpage during 1922-1990 would have resulted in hydraulic reconnection of the regional groundwater and the river within ten years from 1922. This condition would allow for the occurrence of streamflow throughout the year. Other simulations are being conducted to determine the effects of different scenarios on the regional groundwater levels and baseflow.

Task 2 – Geomorphology (J. Mount, G. Pasternack)

During the period 12/99 to 4/00, the geomorphology monitoring and research program focussed initial efforts on testing the hypothesis that non-structural floodplain management measures, or levee breaches, provide a mechanism for restoring geomorphic processes on floodplains. Specific tasks included: 1) preliminary evaluation of field data previously collected at the Cosumnes River Preserve (March-November 1999 - data collection supported by the Packard Foundation), 2) field observation of flooding (December 1999 - April 2000), initiation of development of a 2D unsteady flow model for selected reaches in order to model flow and sediment transport on the floodplain. In addition to the floodplain studies, a literature review was conducted for a basin-scale study to investigate the relationship of channel bed sediment size distribution to geologic controls and anthropogenic changes.

Preliminary analysis of transects surveyed at the Cosumnes River preserve document floodplain sand splay sediment deposition and erosion patterns, particle size distribution, and vegetation establishment resulting from the levee breaches - and suggest that levee breaches promote restoration of floodplain topography - a first step toward restoration of habitat diversity. Observations during winter floods provide insight into development of methods to monitor floodplain flow discharge velocity, depth, shear stress, and water surface slope - the physical parameters responsible for floodplain erosion and deposition patterns. Future monitoring of sand splay geomorphology and floodplain evolution will be used to optimize levee breach locations and designs.

Task 3 -- Water Quality (R. Dahlgren)

The water quality monitoring program was initiated on October 1, 1999 to coincide with the beginning of the water year (Oct. 1 to Sept. 30). Funding for the work conducted prior to the beginning of this grant came from other sources. A total of 28 sampling sites were selected in the upper watershed to characterize nutrient and suspended sediment fluxes as a function of land use, vegetation, geology, and climate along the western slope of the Sierra Nevada. Samples were collected biweekly to monthly (except for higher elevation snow-bound sites) and analyzed for 16 water quality constituents. Several additional constituents will be added to the basin-scale water quality monitoring

program during the 2000-01 water year to provide more detailed information for development of the water quality-food web model.

In addition to the basin-wide water quality monitoring, we selected five sites (North, Middle and South Forks, Michigan Bar and Twins Cities Road) for intensive monitoring during all major storm events. Samples were collected during the rising and falling limbs of the hydrograph to examine the relationship between stream flow and hydrochemistry. These data fill an important element in our temporal-scale investigations (*e.g.*, annual, seasonal and storm-event) of nutrient and sediment transport.

Water quality monitoring was also initiated at 13 sites on the floodplain at the Cosumnes River Preserve to examine the effects of floodplain processes on water quality and food web dynamics. These data will support both the Geomorphology (suspended sediments) and Aquatic Resources (carbon and nutrient dynamics) programs.

Lastly, a paired basin comparison was initiated to examine water quality differences between the Mokelumne and Cosumnes River basins. We are particularly interested in determining whether the effects of the dams on the Mokelumne River appreciably change water quality inputs into the Bay-Delta ecosystem. Our initial results (Oct. 1 to March 30) indicated higher water temperatures and chlorophyll-a concentrations in the Mokelumne River (at New Hope) and higher concentrations of total N and P, NO₃-N, PO₄-P, particulate organic matter (>0.45 µm), and inorganic suspended sediments (>0.45 µm) in the Cosumnes River (at Twin Cities Road).

Task 4 -- Aquatic Resources (P. Moyle, T. Grosholz)

Sampling for fish and invertebrates began on the Cosumnes River flood plain in late January following the first pulse of water. Some of the key accomplishments in the first three months include:

- (1) development of a protocol for sampling invertebrates on floodplains,
- (2) construction and application of an electrofishing boat for floodplain sampling of fish,
- (3) sampling of the flood plain twice weekly with seines and electrofisher to determine distribution of fish, including juvenile salmon, in relation to habitat characteristics,
- (4) sampling of zooplankton and benthic invertebrates weekly to determine composition and abundance in relation to habitat characteristics and residence time of water,
- (5) collection of fish and invertebrates to undertake a stable isotope analysis of floodplain food webs,
- (6) zooplankton growth rates studies to quantify growth potential at different sites
- (7) compiled existing data on distribution of fish throughout the Cosumnes watershed to develop a sampling protocol and plan for the coming summer,
- (8) developed a conceptual model on how fish use the floodplain,
- (9) worked out cooperative sampling arrangements with Entrix (sampling lower Mokelumne and Cosumnes rivers) and USFWS (AFRP), and
- (10) worked out permits for sampling splittail with USFWS.

Because the project has just started, we have no formal results yet although we have been impressed with how rapidly invertebrate and fish populations develop on the floodplain.

Task 5 – Data Management (J. Quinn)

In the first quarter of the project, we collected available mapped data currently needed by the field projects and converted them into consistent ArcInfo formats. We also established field reference points for future imagery and mapping applications, and developed maps and visualizations to help investigators better lay out sampling sites and coordinate field activities. Methods for integrating current field mapping were developed and implemented. The process of standardization of terms and metadata for the other tasks is an ongoing activity, but a framework to share data using formalized metadata-derived data structures and controlled vocabularies is being adapted from collaborative projects with other state and federal agencies, and modified to serve data collected from the Cosumnes. GIS data, support and hard copy maps were provided to the other members of the consortium.

Task 6 – Science Support (J. Mount)

During this quarter the project's Field Coordinator has coordinated the mapping of field research sites, assisted in the collection of hydrologic, water quality, geomorphic and aquatic resource samples, and developed, in conjunction with the Cosumnes Preserve managers, protocols for access to and utilization of field sites.

Weekly meetings of project researchers began in January. At these meetings, investigators discuss research plans, coordination of data collection, and preliminary research results. The meetings also serve as a means of coordinating the acquisition of equipment and data that will be useful to all members of the group. A truck has been acquired under long-term lease for the joint use of field personnel. Plans are underway to obtain digital elevation models of the floodplain and aerial photos of the watershed to monitor changes in geomorphology, the filling and draining of the floodplain and changes in vegetation over time.

Projected expenses for next three months

Month 1: \$41,650 Month 2: \$41,650 Month 3 \$41,650 Total for quarter \$124,950.

Task	Anticipated Deliverables	Due Date	% of Work Complete	Date Deliverable Complete
Task 1: Hydrology.	1) Report and Task: Linked surface water/groundwater model for the Cosumnes River	January-02	20%	
	2) Report: Hydrologic analysis of management alternatives for enhancing flows to promote Chinook chinook Salmon salmon spawning in the Cosumnes River	January-02	10%	
	3) Report: links between surface flows and groundwater conditions in the Cosumnes River basin: management recommendations	January-02	5%	
	4) Report and Task: Hydrologic and biological monitoring strategies using a physically-based and spatially-distributed model, Cosumnes and Mokelumne River Basins	January-03	0%	

Task	Anticipated Deliverables	Due Date	% of Work Complete	Date Deliverable Complete
Task 2: Geomorphology	Report: Geomorphic impacts of non-structural floodplain management measures in the Cosumnes River Basin.	January-01	25%	
	Report and Task: Meander migration modeling of non-structural floodplain management alternatives.	January-02	15%	
	Report: Levee setback and breach design for optimization of restoration and flood damage reduction.	April-02	5%	
	Report: Flood flow management, coarse sediment flux and restoration of geomorphic function	April-02	0%	
	Report: New methods for monitoring sediment and channel impacts of land use change, Cosumnes and Mokelumne River Basins	January-03	0%	

Task	Anticipated Deliverables	Due Date	% of Work Complete	Date Deliverable Complete
Task 3: Water Quality	Report and Tasks: Water quality model and calculated yearly loadings in the Cosumnes and Mokelumne basins	August-01	15%	
	Report: Seasonal flux rates of nutrients and implications for watershed management	January-02	10%	
	Report and Tasks: Food resource modeling in upland watersheds and the potential links to lowland ecosystems in the CALFED region	January-02	5%	
	Report and Tasks: Water quality monitoring model for the Cosumnes and Mokelumne Watersheds: nutrients, salts, suspended sediments, pathogens, trace elements, dissolved oxygen and temperature	January-03	5%	
	Report and Tasks: Water quality monitoring model for the Cosumnes and Mokelumne Watersheds: chlorophyll-a, organic matter, pathogens.	January-03	5%	

Task	Anticipated Deliverables	Due Date	% of Work Complete	Date Deliverable Complete
Task 4: Aquatic Resources	Report: Aquatic resource survey of the lower Cosumnes and Mokelumne Rivers	January-02	10%	
	Report Aquatic resource survey of upper Cosumnes and Mokelumne Rivers	April-02	10%	
	Report: Impact of seasonal flooding on native and non-native species, Cosumnes and Mokelumne Rivers.	April-02	15%	
	Report: Floodplain management to enhance primary productivity and native invertebrates.	April-02	0%	
	Report: Floodplain management alternatives for reduction in invasive aquatic species	January-03	0%	
	Report: Recommended monitoring plan for aquatic species in the Cosumnes and Mokelumne River basins.	January-03	0%	

Task	Anticipated Deliverables	Due Date	% of Work Complete	Date Deliverable Complete
Task 5: Data Analysis and Dissemination	Website: The Cosumnes Consortium	April-00	75%	
	Report and Tasks: GIS support for multi-objective hydrogeomorphic and biologic monitoring Tasks in the CALFED region.	January-02	10%	
	Report and Task: Web-based access to the Cosumnes and Mokelumne River hydrogeomorphic and biologic monitoring Task.	June-02	15%	
	Report and Task: Application of web-based CARES Task and additional decision support tools for monitoring and restoration in CALFED watersheds.	January-03	0%	

NFWF Quarterly Fiscal Report-APRIL 2000

Title: Purple Loosestrife Prevention, Detection, and Control Actions for the Sacramento-San Joaquin River Delta System and Associated Hydrological Units

Applicant: California Department of Food and Agriculture, Integrated Pest Control Branch

CALFED Project Number: 99-N11

Budget year: 2000

Statement Quarter:	2
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Total Project Estimated Completion Date: Jan. 2003			3 years									
				(Quarterly Budget)			(FY '00 Budget)			(Three Year Budget)		
				Budget	Accrued expenditure	Variance **	Budget	Accrued expenditure	Remaining Balance **	Budget	Accrued Expenditures	Balance to Complete *
				\$0	\$0	\$0	\$7,166	\$7,166	\$0	\$7,166	\$7,166	\$0
Task 15: Education Outreach												
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 15: 80%												
Task 16: Training of Professionals				\$0	\$0	\$0	\$2,214	\$2,214	\$0	\$2,214	\$2,214	\$0
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 16: 60%												
Task 17: GPS Existing Sites				\$3,700	\$3,788	(\$88)	\$8,500	\$7,288	\$1,212	\$11,776	\$7,288	\$4,488
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 17: 35%												
Task 18: Butte, Shasta, Upper River Survey				\$7,500	\$7,509	(\$9)	\$18,021	\$14,509	\$3,512	\$26,829	\$14,509	\$12,319.86
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 18: 20%												
Task 19:Update GIS				\$800	\$827	(\$27)	\$2,000	\$1,827	\$173	\$2,800	\$1,827	\$972.86
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 19: 70%												
Task 20: Assessment				\$0	\$0	\$0	\$0	\$0	\$0	\$2,088	\$0	\$2,087.53
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 20: 0%												
Task 21: Produce Adaptive Management Plan				\$0	\$0	\$0	\$0	\$0	\$0	\$2,132	\$0	\$2,132.28
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 21: 0%												
Task 22: Environmental consultation and planning				\$1,000	\$1,300	(\$300)	\$1,800	\$1,800	\$0	\$3,559	\$1,800	\$1,758.74
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 22: 30%												
Task 23: Implement Controls				\$0	\$0	\$0	\$8,000	\$2,000	\$6,000	\$26,912	\$2,000	\$24,912.35
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 23: 5%												
Task 24: Monitor loosestrife density/control success				\$0	\$0	\$0	\$4,000	\$1,000	\$3,000	\$17,025	\$1,000	\$16,024.77
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 24: 0%												
Task 25: Monitor water				\$0	\$0	\$0	\$0	\$0	\$0	\$24,972	\$0	\$24,971.83
Schedule: FY '99 through FY '02												
Percent Work Complete for Task 25: 0%												
Phase I Total:				\$13,000	\$13,424	(\$424)	\$51,702	\$37,805	\$13,897	\$127,473	\$37,805	\$89,668